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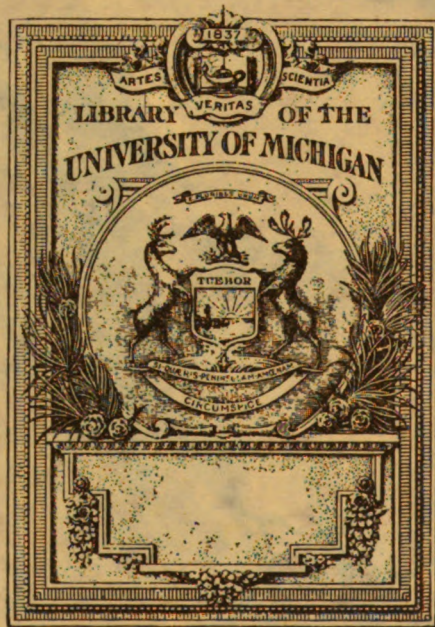
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THE GIFT OF
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NINTH ANNUAL MEETING

American
Drug Manufacturers'
Association



HOTEL BILTMORE
New York City

April Twelfth through Fifteenth
1920

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PREFACE

The growing volume of discussion at our annual meetings made it necessary for the Association to forego its custom of printing the proceedings verbatim and in full, if it would keep the size of its yearbook within reasonable bounds.

In judging between the matter to be printed and the matter to be deleted your Executive Committee has been guided strictly by the rules contained in the resolution adopted at the Ninth Annual Meeting. In the first place it has deleted matter, which, while of great interest at the time, is not, by reason of the subject with which it dealt, of permanent value. In the second place it has condensed the remarks of speakers by eliminating the repetition, and the little pleasantries not bearing on the subject, to which we are all given when speaking extemporaneously.

The omissions that members will be quickest to note, perhaps, are those of the banquet speeches, the talk at the evening entertainment and the greetings of our friends from other organizations. These were delightful features of our meeting and there was a strong temptation to include them because of their entertaining value. But, mindful of the character of the proceedings, as a practical work of reference pertaining strictly to the industry, the Committee realized that there was nothing to do but to omit them.

You will also note the deletion of discussion leading up to action which closed the matter in question for good and all, and made a printing of the discussion useless. This embraces the discussion preceding the adoption of the resolution to affiliate with the Drug Trade Board of Public Information, the discussion incidental to the election of officers (every useful purpose being served by the simple publication of the list of officers); the remarks incidental to the election of new members (whose names you will find in the list of members); the discussion on the telegram and testimonial to Mr. C. M. Woodruff; the discussion relative to the Building Fund of the United States Chamber of Commerce, (which resulted in a subscription of five thousand dollars in the name of the Association); and the discussion preceding the adoption of the resolution respecting the editing of the Proceedings.

The condensation of the work has given you, the Committee believes, a more concise volume in which you will more easily find the matters to which you are most likely to want to refer. It was with this view of accessibility that the Committee abandoned the chronological session order and grouped, under separate articles, all discussion pertaining to a given subject, regardless of the session at which the discussion took place. The Committee hopes its work meets with your approval.



CONTENTS

	<i>Page</i>
PART I. ABSTRACTS FROM BUSINESS SESSIONS.....	7
Address of the President	9
Report of the Secretary	20
Report of the Treasurer	33
The Problem of Express Allowances	37
Washington—The New Business Center	41
Foreign Trade Problems	49
Some Salesmen Problems	54
Report of War Service Committee	69
Report on Social Insurance	71
Employment Problems	85
Report of Committee on Legislation	109
Report of Committee on Transportation	121
Sources of Credit Information	129
Fire Insurance Conditions	137
Alcoholic Medicinals and Prohibition	150
A Pharmacopœial History	165
Patent and Trade Mark Reforms	170
The Return of Unsalable Goods	183
Report of the Tariff Committee	188
Resolutions	190
Wood Alcohol and Prohibition	193
Paying Off Discharged Employees	202
Percentage of Dealers Taking Discount	205
 PART II. ABSTRACTS FROM MEETING OF THE SCIENTIFIC SECTION	 207
The Scientific Section During 1919	209
Acetyl Salicylic Acid	216
Aconite	218
Cannabis	223
Chloroform and Ether	227
Assay of Mercury	234
Diluents	241
Drug Extracts	244
Glycerin for Sugar in Elixirs	259
Zinc Oxide Ointments	262
Alkaloid and Drug Standards	263
Nitro Glycerin Tablets	274
Pepsin and Pancreatin	282

	<i>Page</i>
Crude Drug Problems	284
Metric Equivalents	290
The Electron Theory	300
Colorimetric Estimation of Adrenalin	317
Beet Sugar in Medicinal Manufacture	322
 PART III. MEMORIALS TO DECEASED MEMBERS	 327
Richard C. Stofer	329
Frank G. Ryan	330
H. C. Moore.....	332
 APPENDIX	 333
Constitution	335
By-Laws	338
Regulations of Trade-mark Bureau.....	342
Members of American Drug Manufacturers' Association.....	345
Officers and Committees	347
Subcommittees of Scientific Section.....	350
Scientific Section Personnel	351

PART ONE

Abstracts from Business Sessions

ADDRESS OF THE PRESIDENT

**At the Ninth Annual Meeting of the
American Drug Manufacturers Association**

As we assemble upon the occasion of the ninth annual meeting of our Association it is with pleasure and pride that we look back upon the many constructive things which have been accomplished. If nothing had been accomplished in the way of solving the problems which have from time to time presented themselves, and which have been so satisfactorily solved, the very fact that our meetings have made it possible for managers of competitive corporations to meet in a social way, forgetting commercial relationships and pooling their mental faculties, to frankly and openly discuss the problems, which years ago were selfishly guarded as individual problems, but now are considered in a co-operative way, as joint ones, thus making an easy solution of the many difficulties which heretofore seemed insurmountable, proves that our association and the time spent at its annual meetings have fully compensated for their monetary costs. The cordiality, good fellowship and personal friendships created as the result of the formation of this association, have been well worth while.

We distinctly recall the auspicious circumstances surrounding our last meeting and the mingled pleasure, pride and gratitude with which we witnessed the victorious march of the heroes of the Twenty-seventh division. We remember there was at least one family reunion during our convention which brought joy to the heart of one of our honored and esteemed members. Our loved ones were returning; our confidence in the future freedom, prosperity and happiness of our nation was unbounded. While but six months had elapsed since the signing of the armistice, we all believed that within a few brief months pre-war conditions would be re-established. We believed that it would be possible to return to our endeavors for building up a greater nation, and to the perpetuation and exalting of those American principles, based upon the foundation so wisely established by our forefathers.

The conditions arising within the last twelve months, however, have sorely tried the mental acumen and business ability of everyone, because of increasing discontent and unrest. In spite of it all, there is today no other nation in the world which enjoys a greater degree of freedom, of happiness and of equality. Whatever element

of turmoil or unrest may still exist, we Americans who are accustomed to meeting perplexing problems with coolness, calmness, and reason, will surmount, and as a result of the acid test that has been applied and is now being applied to our nation, we will emerge better and more earnest Americans, and more constructive citizens. Individual initiative and untiring American energy will predominate.

Our Industry

The volume of business transacted during the past year has indeed been very satisfactory. While the fluctuation in prices of raw materials has been marked and the downward course of many articles most gratifying, it is my belief that few serious losses have been incurred. Unquestionably, we are at the moment at a stage where natural and economic laws are somewhat strained. We believe, however, that the future has in store for our business no very serious upturns or downturns. It is a well-known fact that the products which we handle have, as a whole, given evidence of more stable prices than have the bulk of other commodities. It is true that during the war the members of our Association produced of their line and sold to the Government upon strictly competitive prices and that each of us in this competition took to heart the appeal of the Government and resolved that profits should not enter into consideration. As a result of this practice, it was inevitable that market conditions were not seriously disturbed; consequently, even though the peak of high prices in general commodities has been reached, the possible decline of such has no terror for us.

It is well known that the raw materials for our industry are gathered from every section of the globe. The natural law of supply and demand will always operate, and doubtless many products will never be restored to pre-war prices because of the higher wages and general costs incidental to the collection, preparation and distribution of such basic materials.

Therefore, as far as we can see, the wholesale or the retail trade have little to fear as to shrinking values of stocks of our production. On the other hand, if ever there was a time when scientific stockkeeping should be intensively studied—by scientific, I mean careful discrimination as to the accumulation of stocks too far in advance of normal consumption—it is right now. It is my impression that the member firms of our association turn their

capital with less frequency than any other known line. This is largely due to the fact that much of our basic material is seasonal in character, and therefore stocks of such must be purchased covering requirements for the year, and sometimes several years.

Your Executive Committee

This paper is termed the President's report, a sort of message to you from the executive head of your association, for the time being. Its shortcomings need not seriously concern us, for I am happy to state that, fortunately, the Executive Committee, including the General Secretary, are the real managers of this association. Without their constructive advice, without the time which they have devoted to traveling, in order to be in prompt attendance upon the meetings of the Executive Committee, our association work would make but little headway. The members of the committee have not only been very ready in responding to calls for meetings, but have written and advised with your General Secretary and your President, and have always displayed an exceptional interest in the welfare of the association and its affairs. I am not unmindful of the fact that the membership of the association has displayed a degree of personal interest in its concerns which is indeed remarkable in associational matters. We have a small, compact body of men of high business ability, and special technical skill. I know of no other association where the various committees have shown such marked interest and have willingly given of their time, their knowledge and their ability for the benefit of their fellow-members and the extension of their association.

It is therefore little wonder that all of us are filled with pardonable pride and a deep measure of loyalty to this, our association, and its activities.

Our General Counsel

Unquestionably, during the past three or four months we have very keenly felt the absence of one of our most loyal and constructive members—one who was present at the birth of this association, and who then builded even better than he knew. Mr. C. M. Woodruff's health was such that it was necessary for him to leave the vigorous northern climate for the more health-giving, balmy atmosphere found in the State of California. We sincerely trust that his health has been fully restored and that a beneficent Providence

will spare him to us for many years, and that we may continue to profit by his counsel and advice.

Washington Representation

By reason of the aforementioned circumstances we felt the necessity of such representation at the seat of Government as would insure our being promptly in receipt of all necessary information, both legislative and regulative. Your Executive Committee therefore employed the services of the well-known law firm of Ellis, Ferguson & Colquitt, of Washington, D. C. Mr. Colquitt has served our association but a very brief period, but we were not long in discovering the advantages of such direct, on-the-spot representation. It has been the policy of the management of your association to absolutely abstain from lobbying, or creating any position which might indicate that such was our desire.

On the other hand, whenever it became necessary, we have felt it our duty to promptly advise with legislators or departmental heads, bringing to them the practical and technical information which would aid them in reaching fair decisions as the result of a thorough knowledge of the conditions surrounding our business.

We have always believed that mutual confidence and hearty co-operation should exist between departmental heads and the representatives of our industry. We have always been exceedingly careful to present facts, and facts only, and when called upon for advice and information, we have made it a practice to approach the problem, not from a selfish, business viewpoint only, but from the viewpoint of loyal American citizens, concerned in the common good, seeking to strengthen and uphold our constitution, our government, and the laws of the United States of America. This same policy we desire to pursue, and we trust that as the result of proper representation, we can in the future be more prompt in the submission of all necessary information, and that as the result of this co-operative endeavor upon our part, we will in turn receive from the various departments a measure of co-operation born of mutual confidence and esteem.

Scientific Section

One of the most important accomplishments of our association was the formation of our Scientific Section, which developed from the appointment of a Scientific Committee. This committee, under

the able leadership and guidance of Dr. Dohme, displayed a very great interest in the problems which he directed to their attention. The technical and scientific ability at hand evidenced the necessity and importance of the work which could thus be performed; the attendance upon the meetings of the Scientific Committee accentuated the desire of those connected with our laboratories for more intensive research work, and for a furtherance of the advantages derived from conferences and correspondence between its members. It is my belief that the Scientific Section, notwithstanding the amount of constructive work which has already been performed, is still in its infancy.

The hope has frequently been expressed that the time is not far distant when an associational laboratory will be equipped under the leadership of an able chemist, selected preferably from the personnel of our Scientific Committee; that the laboratory may be equipped with all necessary appliances to facilitate the pursuit of intensive investigations in the field of science, directly related to the industries represented. It is, of course, well known to our members that the scientific division has already presented to the Pharmacopoeial Revision Committee some very valuable data. It is our hope and belief that our Scientific Section will be of material assistance to the Revision Committee during its work in the revision of the forthcoming Pharmacopoeia.

Our Scientific Section has filled a much-needed void, and as a result of the constructive, co-operative endeavor which exists between the Pharmacopoeial Revision Committee and this section, we may hope to do our share towards making the forthcoming Pharmacopoeia a handbook of great practical value to the medical and pharmaceutical profession of the United States.

I venture to say that the time is not far distant when the commercial laboratories of our great manufacturing establishments will prove to be the post-graduate laboratory of colleges and universities. Positions therein will be eagerly sought, for the purpose of obtaining practical, technical training to supplement the scientific knowledge previously obtained. Unfortunately, our association is small in numbers. The organization and equipment of a laboratory such as above described would unquestionably require a large monetary outlay, and if later a practical working scheme is developed, it would undoubtedly require independent financing. While we all sincerely hope that the scheme presented by Dr. Herty

will finally become a reality, it is the belief of many, which is shared by our executive committee, that unless it seems likely of early fruition, our Scientific Section should take the initiative, with the assistance which can be rendered by our Association.

Cancellation of Commodity Rates

Early in March, under Transportation Bulletin No. H-6, the chairman of our Committee on Transportation directed the attention of the membership to the possibility of the cancellation of the westbound transcontinental commodity rates on drugs, medicines and chemicals, which, according to the information at hand, would increase the less than carload rate from New York to the Coast, from \$3.12½ to \$4.62½ per hundred pounds, and in carload rates from \$2.31½ to \$4.00 per hundred pounds. Many articles now permitted in consolidated cars would also be eliminated.

In addition to the advance caused by the elimination of commodity rates, it is the announced intention of the carriers to advance the class rates as well. While it is true that the railroads have been operating under Government ownership, at a tremendous loss, and while perhaps the advancement of class rates is an absolute necessity, we should resist with all possible vigor the proposed cancellation of commodity rates, particularly as it applies to drugs and chemicals. Unfortunately, it so often happens that in the legislative halls and elsewhere, drugs and medicines are pounced upon as a commodity which will bear all sorts of loading. Indeed, it has appeared in the past that drugs and medicines have been looked upon as luxuries; whereas, as a matter of fact, these commodities are those which should in every instance be taxed the least and penalized the least, in order to make the burden of being sick as light as possible. Unquestionably, the burden of sickness falls most heavily upon the masses, the wage workers, those who in times of affliction receive the most serious economic setbacks.

Pharmaceutical Publicity

During the past year Professor Army has arduously worked for the development of a National Committee on Pharmaceutical Publicity. Your Executive Committee, while endorsing the general plan, hesitated to commit your association, until such time as the subject could be presented to you in a constructive manner for your consideration and discussion. The Executive Committee will

present a resolution bearing upon this subject. There is little doubt but that such a committee could perform work of inestimable value. Facts should be presented for the information of all people, pointing to the important field occupied by the pharmaceutical profession. While we know that pharmacy is the handmaiden of medicine, the vast majority of people do not properly comprehend the importance of our industry.

Sensational writers frequently weave the most startling and blood-curdling stories, by using for their purpose the chemist or pharmacist, and picturing him as the producer and purveyor of mysterious and sinister compounds, and the distributor of dope to the underworld. They launch fantastic stories of the destruction of life and health caused by the employment of the concoctions which have never existed. The lay mind is impressed with the fact that an individual or corporation handling medicines coins money with greater ease and facility than does the owner of a diamond or gold mine. Unfortunately the chemist and pharmacist considers this field a sacred trust. He is bound by certain ethics which prevent him from refuting slanderous statements, or in any manner conveying to the public true facts pertaining to his art.

Should a Pharmaceutical Publicity Committee become a reality, it is the opinion of your executive committee that the work of such committee should be most constructive, totally void of sensationalism, dignified in tone, and highly educational in character.

Chamber of Commerce of the U. S. A.

Your President recommends that we continue our affiliation and that our National Counsellor, Mr. Charles J. Lynn, be reappointed, and that as far as possible it be the policy of this association to reappoint the same national counsellor year after year, or as long as such national counsellor is willing to give of his time and his energy for this important work. We are already familiar with the fact that the Chamber of Commerce of the United States proposes to erect a building in Washington. Your Executive Committee will doubtless present a resolution indorsing this most constructive movement. However, because of the fact that our association is national in character, and its members are affiliated with local chambers of commerce and other civic organizations, we respectfully recommend that they encourage this work by their financial aid in their respective communities.

International Chamber of Commerce

Plans are being completed for an organization meeting in the early fall. While many members are vitally interested in the furtherance of exports, I am not prepared to say that the majority of the membership is so interested. This subject is therefore referred to you for your careful consideration. It is an undisputed fact that unless foreign trade is sought the time is not far distant, at the present-day rate of production, when the point of domestic saturation will have been reached.

We are no longer an isolated nation. The world war has completely changed our position, and therefore the continued development of our nation is not possible unless we participate in the world commerce and finances.

National Prohibition Law

As the result of the enactment of the 18th Amendment and the Volstead Act, the pharmaceutical industry suddenly found itself charged with grave responsibility. Your legislative committee, your executive committee and your officers have been keenly alive to the importance of the problem confronting us. Our members have, with commendable endeavor, striven, not only to obey the letter, but the spirit of the law as well. We have participated in conferences; we have assured the Internal Revenue Department and the division having the enforcement of the law in hand of our earnest desire to co-operate with them. To this end, your Executive Committee has invited Prohibition Commissioner Kramer to appoint a representative of his department to confer with us upon this occasion.

Here again constructive co-operative endeavor upon the part of our members has been and will continue to be in evidence. It is appreciated by all parties at interest that too heavy a burden must not be laid upon the masses, as a result of unnecessary restrictive regulations, which would simply add to the sum total of unrest and discontent at present abounding.

From the expressions received from members, your Executive Committee believes that it is the desire of the rank and file of our membership to refrain from producing or selling any class of medicines which have, by the department, been ruled to be fit for beverage purposes, as it is seemingly the policy of every member

that our noble profession should not be degraded by automatically becoming liquor dealers by virtue of the taking out of a liquor license or permit for the sale of legitimate, useful, yes, necessary medicines, which should be freely available for their proper and, in the main, urgent necessary use.

I am very sure that our Executive Committee and the Scientific Section will gladly co-operate with the Technical Division of the Internal Revenue Bureau, having in mind the curbing of abuse and having in mind, if necessary, the modification of any medicinal compound which is frequently or even semi-occasionally prescribed by the medical profession. It should be borne in mind that whatever safeguards the department may place around the sale and distribution of such compounds, should by no means be so restrictive as to cause the consumer unnecessary additional cost, because of the materially added expense incidental to the legitimate sale and distribution thereof.

German Chemicals

About thirty days ago this association received a communication from Hon. St. John Perrett, Chief of the War Trade Board Section, State Department, making inquiry as to the advisability of the admission of certain German chemicals, many of which had previously been exploited and sold with the protection of an United States patent, and, in some instances, the added protection of a trade-marked name. Your Secretary and Executive Committee gave serious consideration to this important subject, and a communication was addressed to Mr. Perrett by the Secretary, under the instructions of the Executive Committee, which communication is in the Secretary's file, and may be read for your information and consideration, should you so desire.

You will distinctly recall that American manufacturers were urged and encouraged in the development of processes and the establishment of plants for the production of medicinal chemicals and dyestuffs which had heretofore never been produced in this country. To now grant the admission of such materials, excepting under strict regulative conditions, and a protective tariff or other safeguard, would, in my judgment, be an act of bad faith upon the part of our government. While, in the list submitted, there appeared items which are not now manufactured in this country, unquestionably, as the chemical industry develops, there will, from

time to time, be material additions to the line. Therefore, while the admission of many of the items would at the moment not have worked a serious hardship upon our members, we considered the subject from a broad, economic, patriotic viewpoint. Every possible protection must be accorded the development of these infant industries, and the workers necessary for the production of chemicals and dyestuffs, which will ultimately prove, whether in peace or in war, a strong, economic factor in our national life.

Taxation

The time is not far distant, indeed, it is already at hand, when the present system of war taxes to which every patriotic citizen loyally and gladly subscribed, should be abolished. A more simplified form of reporting should be provided, and it is the belief of many of the leaders in commerce and finance, that the excess profit tax should be abolished, because it has already become an unbearable burden and will ultimately prove a retarding influence in the development of our national life, as it relates to commerce and industry.

It has been stated, by representatives of some of the large industries, that in spite of the belief that the present high rate of taxes is passed along to the consumer, there is indisputable evidence that in highly competitive lines, which is particularly applicable to the industries represented by our association, much of the tax has been paid by the industry and not by the consumer. On the other hand, doubtless the multiplication of overheads from dealer to dealer has, in the main, been largely responsible for the ever-increasing advance in commodity costs. While much has been said and there seems to be a growing opinion that the proposed tax on sales will provide a more equitable distribution, and, on the whole, prove less burdensome than the present system of taxation, at the same time insuring to the government the necessary amount of revenue, your Executive Committee has as yet not considered this vitally important problem, and therefore we have no recommendations to make, except to suggest that this subject receive the careful consideration of our members, in order that the incoming officers and executive committee may receive an expression of your views and direct their endeavors in accordance with your desire.

In closing, I would be ungrateful, indeed, if I did not express my personal thanks to every member of this association, and, more particularly, my hearty thanks to the officers and members of the Executive Committee and General Secretary, who are responsible for whatever measure of success may be credited to the work of our association during the past fiscal year.

R. C. STOFER.



REPORT OF THE SECRETARY

At the Ninth Annual Meeting of the
American Drug Manufacturers Association

This year's report of the Secretary is inspired by a conviction that has been growing firmer in his mind for some time. If I may be permitted to indulge myself in a home-made text for my sermon, let me offer this—"The horse in the barn doesn't turn any furrows." To be less figurative, your presumptuous Secretary believes that, while the membership, with industry generally, is complainingly permitting itself to be seriously hampered by adverse influences, it possesses vast potentialities for correcting those evils of which it is not availing itself.

Great Latent Power

It is safe to assert that, with the single exception of the Proprietary Association, no single factor in the Drug Trade or Medicine possesses the potential power for remedying its evils that this industry possesses. It is likewise safe to say that no industry is using so small a proportion of its potential power in its attempts to meet its problems.

The fact that an association represents a manufacturing industry implies powerful reserves of organization experience—of big caliber men—the association can say the last without immodesty for men who manage such great units can be nothing else—and—but here I must focus my meaning well—if I mention capital as a source of power, I do not mean to imply its use as a force for coercion, corruption, undue influence or suppression of truth or justice, or for any other use immoral or even unethical. I mention it rather for the legitimate uses to which it can be put, uses in no way inconsistent with the public welfare. We could be charged with nothing worse than a desire to have justice done us if we used it, let us say for the dissemination of truthful information that would make the public proof against the misrepresentations of either those with ulterior motives or of well intentioned but ignorant reformers.

The A. M. A. has long been regarded by many in pharmaceutical and medical circles as the dominant factor in these fields, with almost irresistible power for bringing the other factors into absolute subjugation, if it should ever will to so exercise its

strength, which I am not contending. Yet, why should this be so? Their organization, it is true, has the advantage of many years more building than has our own, but it is nothing that could not be easily duplicated were the organization experience of the membership applied intensively to the task. And outside of this, the natural advantages are with this association. It cannot be said that the financial resources of the A. M. A. are anywhere near as great as those of this industry. And it must be admitted that their organization lacks the coherency of one with our smaller and more compact membership. The interest of the average physician in the A. M. A. is only general in character. The A. M. A. can only deal with problems that affect him indirectly in a scarcely palpable way and besides he is not likely to be in sympathy with all its decisions. It would be a physical impossibility for an organization with better than 50,000 members to reflect the sentiment of the individual as accurately as does our own association of from fifty to sixty members, and to reflect it, moreover, 99 times out of a hundred. The so-called advantages of its members are in my judgment negatived by the disadvantages. What elements of strength its numbers do possess are offset, it seems to me, by the fact that you cannot compare the influence of a single individual physician with that of a manufacturing establishment such as goes to make up our membership.

There is nothing that the A. M. A., or any other Association, has done or can do that we cannot equal, or—if their activity is adverse to our legitimate interest—offset, if the industry is only of a mind to devote a fair proportion of its resources of brains and money and experience to the enterprise. Let me put you at your ease. This is not a preface to the submission of some proposal involving vast expenditures. I am not coming to you with a proposition on which I expect you to act at this meeting. It is simply my intention to put to you more concretely than I have done before some of the constitutional remedies that appeal to me as cures.

If, acting on your own initiative, you should ever see fit to adopt them, they would call, it is true, for much larger sums than you have been in the habit of expending on Association activities. Their proportion to the sales of the industry, however, would be trifling compared to the proportion that an advertising appropriation of reasonable size bears to the advertiser's annual gross sales,

and the good they would accomplish would make the expenditure an even more profitable investment.

The Advertising of Education

In past reports I have hinted in perhaps rather vague terms that this industry needs a good constitutional tonic in the shape of a more accurate public conception of its importance and a more sympathetic understanding by the public of its problems. In the belief that the membership have grown sufficiently strong in the co-operative spirit to perhaps lend me a sympathetic ear, I intend now to speak more concretely and pointedly on this subject. I hope whatever reputation for level headed judgment I may possess will not suffer. To speak frankly rather than modestly I don't think it should. If my ideas seem radical, then I am in the same boat with the best brains of many other representative industries of the country for they are doing what I believe this industry should do. They are coming out openly as becomes honest men, and are using the advertising columns of the newspapers and periodicals to portray for the public their ideals and their problems and the interest that the public has in their welfare.

This is not the advertising of buying and selling; it is the advertising of education. Those who are advertisingly near sighted and conceive of advertising simply as a medium for telling the reader you have something to sell should put on glasses that will enable them to see the bigger field beyond in which advertising loses its commercial character and takes on the guise of an educational force that commands respect and silences critics.

We find a host of industries using it as means of broadening the vision of the people as to the useful possibilities of some utility, and thus increasing the market for that utility as a whole without reference to a particular brand. In this undertaking are enlisted the orange growers, the manufacturers of white pine, and a number of other industries whose names I do not recall. This advertising has a commercial aspect, it is true, but it has not a selfish aspect for, to increase the public knowledge of the uses of white pine, for instance, benefits all manufacturers and growers of this lumber regardless of membership in the Association under whose auspices the advertising is conducted.

But the faintest taint of commercialism cannot be attributed to that phase of advertising that is dedicated solely to the purpose

of cultivating a better public appreciation and understanding of an industry and the country's interest in its welfare. We find the packers, the telephone companies, the Ayers Advertising agency, and, a recent recruit, the National Cannery Association, to say nothing of many others, all maintaining advertising campaigns of this character. Were you to read one of the better types of advertising copy of this class in other than the make-up of an advertisement, you would be more inclined to suspect it of being a portion of an article from the reading columns, written by some disinterested party, so restrained are they apt to be in their references to the industry in whose interest they are published and so commendable are many of them from the standpoint of literary criticism. You might be impressed by the new and greater conception of that industry that the imagination of the copywriter imparted to you by figures of speech that would do credit to an author of literary pretensions, or you might admire the rich fancy of the artist who illustrated the text with a finesse akin to that of a master of the academy. You would find in short an appeal to your cultural rather than to your commercial sense.

To make my meaning more clear by example, just consider the following copy that appeared in an educational advertisement of the Telephone Company but which might just as well have formed a part of an essay.

"Cave Life or Civilization"

Civilized man is distinguished from the cave man by his habit of co-operation.

The cave man lived for and by himself; independent of others, but always in danger from natural laws.

To the extent that we assist one another, dividing up the tasks, we increase our capacity for production, and attain the advantages of civilization.

We may sometimes disregard our dependence on others. But suppose the farmer, for example, undertook to live strictly by his own efforts. He might eke out an existence, but it would not be a civilized existence nor would it satisfy him. He needs better food and clothes and shelter and implements than he could provide unassisted. He requires a market for his surplus products, and the means of transportation and exchange.

He should not forget who makes his clothes, his shoes, his tools, his vehicles and his tableware, or who mines his metals, or who provides his pepper and salt, his books and papers; or who furnishes the ready means of transportation and exchange whereby his myriad wants are supplied.

Neither should he forget that the more he assists others the more they can assist him.

Take the telephone specialists of the Bell System: the more efficient they are, the more effectively the farmer and every other human factor of civilization can provide for their own needs and comforts.

Or take our government, entrusted with the task of regulating, controlling and protecting a hundred million people. It is to the advantage of everyone that the government shall be so efficient in its special task that all of us may perform our duties under the most favorable conditions. Interdependence means civilized existence."

Evading the Physician's Prejudice

It has long been a belief of the ethical medicinal manufacturer that, since his sales leverage is on the physician, any advertising of a popular nature would be a lethal dose to his business. Like a good many other business traditions; it has been accepted as an axiom unnecessary of proof. A little effort to think all around the subject would, I believe, dethrone it from this position just as many other so-called business axioms have been dethroned by some hewer of new trails who has made an undreamt of success largely because he disregarded the rules of the game and played it in a new way.

The ban of the medical profession against advertising to the public is based on the very laudable principle that the calling of the physician is too noble to be made a subject of commercial exploitation. It was imposed in the days when advertising was a crude thing of "best on earth" boasts in brazen and ugly display and when a business man had no other vision of advertising than as a medium of telling greater numbers than his salesmen could reach that he had something that he wanted them to buy. It is the very antipodes of the educational advertising of the sort proposed here, advertising that seeks only to enlighten and whose physical nature is commenable from both literary and artistic standpoints. The prejudice of the physician against advertising that goes to the people should not be regarded as a rock that absolutely bars the passageway. It may be a rock but there are plenty of passages around it, and it is only a case of steering wisely to evade it. It simply means that care must be exercised to avoid the slightest exaggeration, the slightest misstatement, the slightest suggestion of idle boasting, or the slightest tendency to lower the dignity of the medical profession or to commercialize human suffering. These are negative virtues and, not content with their observance, we should seek to impart qualities to our advertising that would positively tend to win the commendation of the physician.

Copy of a restrained tone written in a style that would reflect lofty sentiment could not do otherwise than impress him favorably; neither could an illustration artistically picturing some of the

nobler aspects of the physician's art, or some altruistic phase of medicinal manufacture. And if the advertising treated of the whole cycle of the healing art, the physician, and the pharmacist, as well as the manufacturer, picturing to the people the public service the physician and pharmacist render, your advertising would not only be unobjectionable to him but it would be a positive agency in cementing his goodwill, and the goodwill of the druggist as well.

Style of Copy Recommended

And now let me give you a concrete illustration of how such copy as I have described could be used to cultivate a sympathetic public attitude and at the same time the goodwill of the physician and the druggist. It is hurriedly written without due consideration of the points which the first advertisement should treat, and falls far short of literary merit but it serves to illustrate the style that I am trying to explain.

When the faint glow of the last ember of life brightens under the ministrations of the physician at the bedside, and your loved one comes back to you from the brink of the Great Shadow, your heart, for the first time, wells up with all the gratitude that this, humanity's greatest earthly friend, deserves.

You repay him then in speechless thankfulness for his sleepless nights of watching, his midnight hours of study, and the sunny holidays of youth spent in sombre college laboratories. And in your gratitude, think sometimes of his silent partners—the workers to whose tireless research and exacting care are due the contents of the bottle with which the magic was wrought.

The genial proprietor of the corner drug store may seem simply an obliging merchant to whom you are indebted for a hundred little services, but he, too, is a professional man—a pharmacist who has paid his toll in arduous study. Had he erred in the pharmacist's delicate, hair-line task of filling the prescription, the physician's skill might have only served to mend the ravages of your passionate grief.

And behind the physician and the druggist is the great army in the manufacturing establishments in which the ingredients of the prescription were made. The bacteriologists, the pathologists, and the research chemists who, in the face of a weary chain of failures, developed and perfected the formulas. The financial captains who unflinchingly watched thousands upon thousands of dollars sunk in fruitless experiments before the first glimmer of success. And the workers who throughout every step of the transformation of the crude chemicals into the finished preparation tested and retested its power and purity.

Suggested Facts

You observe that I would rely on indirect suggestion to get my points home rather than on the force of direct statement or argument. It is because facts that are implanted in the reader's mind subconsciously by force of suggestion are less likely to be challenged by him than are those which are stated baldly to be

facts. As for argumentative copy, its use immediately puts the reader in an argumentative frame of mind and he is very likely, from the sheer contrariness of human nature to take the other side.

In the last paragraph it is the intention to awaken the reader to two facts which I believe are contrary to the prevailing impression—first to the fact that the plant of the medicinal manufacturer is really a scientific laboratory and his force composed of scientific experts, and second to the fact that it is to the medicinal manufacturer that Medicine owes a big share of the progress in the development of remedial agents.

In the manner in which these points are here stated their acceptance by the reader is assumed and this very fact tends to induce him to accept them under the impression that nobody questions them. Were the entire five paragraphs to be devoted to proofs of the truth of these propositions, it is doubtful if the reader could be induced to accept their verity as readily. The very fact that you deemed it necessary to prove them would cause him to reserve judgment under the impression there are "two sides to the story."

The latter method, it is true, would leave no question in the mind of the reader as to what you are "driving at," and, conversely, it is true that the methods used in the copy, being less obvious, might cause the meaning to escape more persons than in the case of the former. But the secret of successful advertising is the repetition of the same thought in a number of fresh ways until continuity of impression has firmly implanted it in the mind of the reader, and if you can get your idea home without stirring up doubt your task in the end will be a shorter one.

Aims of the Campaign

Every advertising campaign that hopes for conspicuous success should be carefully planned from beginning to end before the first piece of copy is written. Its aims should be carefully defined and every individual advertisement should be prepared with that aim in view, in order that each may contribute to the continuity of impression that means advertising success. What the points should be in the first campaign of this industry is a matter for careful discussion. I would venture the suggestion however, that

1. It should explain the mission of each of the principal factors in the drug and medical worlds and endeavor

to impress the public with their worthiness and their vital consequence. This would make such a campaign seem more altruistic and help to instill in the public an impression that the industry is inspired by other than purely selfish motives. It would, moreover, increase the goodwill of these other factors for the industry and would serve to contribute to.

2. The second aim which is to awaken the public to the fact that the remedial agents of the medical profession do not "just grow" but are the product of a distinct industry.

3. Thirdly, it should impress the people with the fact that this industry is imbued with the ideals of the medical profession and that while it is naturally looking for a reasonable profit its zeal to serve the public and the profession will brook no sacrifice in quality or service.

4. That it is to the medicinal manufacturer that Medicine owes the development of its medicinal agents, and

5. That there is no industry in whose welfare the average individual has a greater interest, that undue restraint on its liberty of action hampers one of the biggest factors in medical progress, and that it is to the interest of the public to safeguard its production in times of embargoes, shortages, and other adverse conditions.

Size of the Campaign

It would of course be neither feasible nor wise to attempt a campaign of the dimensions of the Wrigley's three million dollar per annum appropriation. Nor would it be postively necessary to resort to a campaign of the size employed by the Telephone Company or the Cannners' Association. The industry could feel its way, always remembering, however, that there is a minimum beneath which its advertising effort would not be worth the ineffectual results accomplished. Of what that minimum consists is a matter for careful consideration. I would suggest the following, however, as the most conservative campaign from which justifiable results could be expected. There should be selected the six representative national magazines of general circulation which would cover the country as adequately as possible. The industry

could contract for six insertions in these magazines for the year to be alternated so as to give it three insertions in three magazines one month and three in the second trio the following month. Your advertisements would thus follow each other at monthly intervals and this would mean that a large proportion of your readers, those, in other words, who read two or more of the magazines in question would be reached every month.

The amount of space taken should in your Secretary's judgment be a full page. This space tends to give your reader the impression of a large campaign and humanity has great respect for size, attributing to the full page advertiser a place as one of the larger and more representative industries of the country and consequently one whose standing is in some measure a guarantee of integrity.

The full page advertisement likewise has greater proportionate attention value for the page carries no other advertisement with which yours must compete for the reader's attention. It must also be borne in mind that the effect of the admirable lay-out of one advertisement may be absolutely destroyed by that of an adjacent advertisement which does not harmonize with it. Then, too, the full page displays your illustration or your copy to an advantage that is lost in smaller size space. The necessity for the use of larger space increases moreover with a reduction in the number of insertions.

It is not pretended that a campaign of this number of insertions in this number of mediums would be as effective as a campaign of, for instance, twelve insertions in a larger number of journals, all conditions being equal. But it could be made as effective as many campaigns of twelve insertions in a much larger list of mediums, if careful workmanship and a policy of giving quality the right-of-way were fruitful in producing advertisements of unusual interest and attention value, and also if the six mediums were selected with requisite care.

Follow-Up of the Campaign

The auxiliaries that could be brought to the support of such a campaign are multifarious but there is one that I would particularly recommend. Your magazine advertisements should be calculated to arouse an interest in the reader—perhaps in the form of curiosity—for further information of a character that would further the

objects of your campaign. If the advertisements were a success in this respect, we would find our readers impressed in varying degrees at any given stage of the campaign. Some would be just sufficiently interested perhaps to watch for the next advertisement, others would be sufficiently interested to send for a booklet giving promise of satisfying their human thirst for accounts of the mystical or the magical or the unexpected. The very fact that he thinks of alcohol only as a thing of evil would arouse the reader's curiosity in a booklet with some such title as "Our Faithful Servant Alcohol," while others who take umbrage at the loss of their daily glass of beer or wine would be interested in it out of a sympathetic attitude for a friend whom they think is being unduly abused. A colorful but accurate story in popular language of the wonders alcohol performs as a solvent would be of as great if not greater interest than "the story of a grain of wheat" or "the story of a piece of coal" or other popular science stories of their ilk.

In thinking of the distribution of such booklets through popular advertising, you must think in terms of hundreds of thousands. Think of what it would mean to educate such an army to the fact that there is a praiseworthy use of alcohol that must be safeguarded, and if you made proper use of your material you would incidentally develop some one of the fundamental aims of your campaign. To take one of those I have suggested you could in the development of your story of alcohol treat of some conspicuous example of a therapeutic agent developed in the laboratory of the manufacturer and impress this same army with the fact that the medicinal manufacturer is one of the most important factors in the scientific progress of curative agents.

Effect of Campaign

In the past years of the Association's existence, I verily believe that the industry has not become known to as many as ten thousand persons outside the medical and pharmaceutical worlds. In one year, a campaign of this character would bring it to the attention, and that in a most favorable light, of hundreds of thousands, if not millions, of people, making them less susceptible to unsound propaganda and less likely to add their voices to the demand for legislation in response to it.

Besides this you have the consideration that magazines are read not only by the rank and file, but also by the bureau chief who

formulates the regulations you must follow, by that legislative activating agent of great potency, the public spirited clubwoman, and no less by the legislator, the editor, the preacher, and a hundred other influential elements in the body politic.

One legislator thus influenced might give your cause a champion sufficiently strong to turn the tide of a legislative contest in your favor and one editor impressed with your important public mission and your worthiness might give your cause the weight of a journal of great influence in molding the opinion of thousands of readers.

You stand to gain not only the benefit of a sympathetic public opinion in the aggregate but also the championship of single elements in that heterogeneous mass called the people whose goodwill can be of great direct benefit to you. Your activities would likewise tend to stimulate a public interest in matters medicinal that would react on the public press and stimulate the publication of articles to your interest, articles all the more influential because they would not bear your stamp.

Public Esteem Through Scientific Attainment

I hope I have said enough on this point of publicity to illustrate that the matter of giving ethical medicinal manufacture an influential and representative place among the industries of the country, a place that will make it proof against the domination of any other force, is simply a question of employing the great latent forces within ourselves that are now lying dormant.

Advertising in national magazines is not the only channel through which these forces can be applied. In fact the imagination can conceive of so many others that it is my purpose merely to cite one or two by way of illustration rather than to attempt to cover them all comprehensively. Let one additional one suffice.

When you consider the years of experience and accumulated data, the wealth of scientific brains, the elaborate organizations of laboratory equipment, and the great advantage of organized capital that is behind this industry your imagination must conceive a rather glowing picture of the leading place that the industry could attain in medical science if it would only make full use of its powers. It is quite true that we have the prejudice of the scholastic scientist with which to contend, but I hope to show that the prejudice is no very formidable obstacle after all.

There are innumerable drugs on which the literature is unsatisfactory or meager. There are scientific men universally recognized as authorities and whose work on these drugs would at once receive recognition from all factors in the Scientific World. In the archives of our members are many years accumulations of invaluable data on these drugs. There are besides some fifty odd laboratories whose co-operation would give a research worker ample corroborative tests.

If the membership were disposed to make full use of its resources the Association could select some problem whose solution would constitute a conspicuous contribution to the science of medicine, it could likewise retain a man of this caliber to devote a year or more of his time to it, and it could give him many years start on a private investigator working alone by placing the experience of its members at his disposal and by giving him the co-operation of these fifty odd laboratories.

His report published under the auspices of the Association and given freely to the World would be accepted on the strength of his name by even those ultra academic scientists who depreciate the work of commercial laboratories.

Conceive of the interest with which a work of so elaborate a character would be received by the Pharmaceutical and Medical worlds and ask yourself if many years would pass before these annual or biennial contributions to Science by the American Drug Manufacturers Association would take their place as one of the most eagerly awaited and most authoritative of scientific series. And, judged in the light of this work, the American Drug Manufacturers Association and the industry it represents would most certainly grow in public esteem.

It is from your Scientific Section that this recommendation, fathered by Dr. Eldred of Eli Lilly & Co., comes and though it may be the most ambitious recommendation ever made by the Section it is only in keeping with the scale on which the Association should begin to do things if it would make the most of its possibilities.

The growth in the co-operative spirit in the industry which your Secretary has watched with a good deal of satisfaction during the past four years causes him to hope that the message of this

report does not wander too far beyond the confines within which you think the Association should be kept. But if it does, he accepts your dictum with all the good grace of a loyal servant and he hopes in turn that you will pardon his frankness as inspired by a sincere desire to advance the interests of the membership.

W. J. WOODRUFF.



***REPORT OF THE TREASURER**

To December 31, 1919

GUARANTY TRUST CO.

RECEIPTS

Balance on Deposit, January 2, 1919.....	\$ 2,306.92
Membership dues.....	16,200.00
Banquet tickets, 8th Annual Meeting.....	670.00
Interest on deposits.....	209.62
Refunds on overcharges, returned goods, etc.....	11.00

Total receipts deposited in Guaranty Trust Co..... **\$19,397.54**

DISBURSEMENTS

*Salaries	\$ 3,275.00
**Secretary's Fund (Dime Savings Bank, Detroit).....	4,321.79
*Traveling expenses.....	882.44
Exchange on checks.....	2.43
U. S. P. Synopsis being compiled by Prof. Lloyd.....	510.75
Eighth Annual Meeting.....	2,790.96
Office Rent.....	700.00
Membership dues, Chamber of Commerce, U. S. A.....	90.00
Stationery and Printing.....	162.64
Annual Proceeding for 1918.....	40.81
Office Equipment.....	80.00
Meeting Scientific Section, August, 1919.....	155.50
Postage	129.44
War Service Gross sales, questionnaires.....	30.00
Renewal premium on Treasurer's Bond.....	25.00
Honorarium to C. M. Woodruff.....	500.00
Refund to Harshaw, Fuller & Goodwin, overpaid on Membership dues.....	200.00

Total disbursements from Guaranty Trust Co. acct... **\$13,896.76**

Balance on deposit, Guaranty Trust Co., Dec. 31, 1919... **\$ 5,500.78**

DIME SAVINGS BANK, DETROIT

RECEIPTS

Balance on Deposit, Jan. 2, 1919.....	\$ 163.90
Received on monthly checks on Guaranty Trust Co. acct..	4,321.79
Personal check of Secretary deposited to credit of acct..	37.50

Total receipts..... **\$ 4,523.19**

*Note that several items appear in more than one of the lists of disbursements and to arrive at the total sum disbursed on these items the amounts in each list must be added together.

**A fund maintained at Detroit and disbursed on the single signature of the Secretary for the purpose of facilitating the payment of expenses of the Association Office. For an itemized statement of disbursements of this fund see Dime Savings Bank Report.

DISBURSEMENTS

Freight and cartage.....	\$ 7.70
*Salaries	1,653.80
Postage	538.55
Towel Supply.....	13.25
Repairs to equipment.....	65.47
Stationery and printing.....	515.09
Office supplies.....	205.23
Law library.....	15.00
New Equipment.....	158.02
Telegraph and telephone.....	321.29
Office Rent.....	500.00
Electricity	10.23
Taxes	38.27
Subscriptions to magazines, government reports, etc.....	75.10
Traveling expenses.....	77.92
Ice and water supply.....	34.50
Advertising for help.....	8.75
Committee Meetings, luncheons, meeting rooms, etc.....	43.45
Souvenir pins, Eighth Annual Meeting.....	62.47
Dues American Metric Association.....	10.00

Total Disbursements from Dime Savings Bank acct.	\$ 4,354.09
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Balance on deposit, Dime Savings Bank, Dec. 31, 1919...	\$ 169.10
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RECAPITULATION

Total amount receipts.....	\$19,397.54
Total amount disbursements.....	13,896.76

Balance on deposit, Guaranty Trust Co., Dec. 31, 1919...	\$ 5,500.78
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Total amount receipts, Secretary's Fund, Dime Savings Bank	\$ 4,523.19
Total amount disbursements.....	4,354.09

Balance on deposit, Dime Savings Bank, Dec. 31, 1919...	\$ 169.10
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Total cash on hand, December 31, 1919.....	\$ 5,669.88
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Report of the Treasurer

To April 1, 1920

GUARANTY TRUST CO.

RECEIPTS

Balance on deposit, Dec. 31, 1919.....	\$ 5,500.78
Membership dues.....	14,700.00
Interest on deposit.....	88.71

Total receipts deposited in Guaranty Trust Co.....	\$20,289.49
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DISBURSEMENTS

Office rent.....	\$ 300.00
Salaries	938.63
Secretary's Fund (Dime Bank, Detroit).....	1,007.19
Committee meetings, luncheons, rooms, etc.....	32.25
Traveling expenses.....	250.00
Exchange on checks.....	1.81
Scientific Section, Experimental Work.....	36.00
Washington correspondent.....	200.00
Annual Proceedings for 1918.....	1,107.00
U. S. P. Synopsis compiled by Prof. Lloyd.....	200.00

Total disbursements from Guaranty Trust Co. acct....	\$ 4,072.68
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Balance on deposit, Guaranty Trust Co., April 1, 1920.....	\$16,216.81
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DIME SAVINGS BANK, DETROIT

RECEIPTS

Balance on deposit, April 1, 1920.....	\$ 169.10
Received from monthly checks on Guar. Trust Co. checks..	1,007.19

Total receipts.....	\$ 1,176.29
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DISBURSEMENTS

Salaries	\$ 484.25
Postage	134.02
New Equipment.....	69.44
Repairs to Equipment.....	13.50
Office Supplies.....	41.87
Subscriptions to magazines, government reports, etc.....	33.59
Ice and water supply.....	16.50
Towel supply.....	3.75
Stationery and printing.....	97.25
Telegraph and telephone.....	105.09
Law library.....	3.75
Electricity	3.24
Renewal premium on Treasurer's Bond.....	25.00
Cartage and express.....	1.50
Committee meetings, luncheons, rooms, etc.....	72.50

Total disbursements from Dime Bank acct.....	\$ 1,105.25
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Balance on deposit, Dime Savings Bank.....	\$ 71.04
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RECAPITULATION

Balance on deposit, Guaranty Trust Co., April 1, 1920.....	\$16,216.81
Balance on deposit, Dime Savings Bank, April 1, 1920.....	71.04

Total cash on hand, April 1, 1920.....	<hr/> \$16,287.83
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Report of Auditing Committee

We, the undersigned, having carefully gone over the reports and accounts submitted by your Treasurer, Mr. Franklin Black, find them to be true and correct.

(Signed)	C. C. DOLL
	J. ALLEN TAILBY
	W. R. JACKSON

April 15, 1920.



THE PROBLEM OF EXPRESS ALLOWANCES

**A discussion at the Ninth Annual Meeting of
the American Drug Manufacturers Association**

Mr. A. W. Haas of the Norwich Pharmacal Company opened the discussion with the following paper:

Although the problem of Freight and Express Allowances is a very vital and important one it has, during the past few days, become insignificant in comparison to the problems arising from the strikes of transportation company employees.

The long string of strikes and the resultant embargoes have kept us occupied with the problem of moving our goods both from laboratories to branches and from branches to customers. All manufacturers have had to move their merchandise regardless of cost. Transportation bills have risen to figures which would have appalled us five years ago. Every strike not only costs the members of this Association thousands of dollars in extra shipping expenses, but has its cumulative effect on the upward tendency of freight and express rates. When conditions will return to normal and what the new normal level will be is, of course, only a matter of conjecture.

The problem of strikes, shipping difficulties and rising rates, therefore, puts the problem of Freight and Allowances very forcibly before us. A wide-awake Traffic Manager usually finds a way to move goods. But how can we keep the cost of doing so from rising beyond all reason? How can we prevent our transportation bills from having a very material effect on our selling prices? The logical answer is: Make all shipments charges collect at destination.

Firm's Experience With Collect Charges

About two and one-half years ago, our Company, particularly the New York Branch, started this practice as a war economy measure. At first there were naturally a large number of kicks from our customers. Some of our salesmen said it couldn't be done in the face of competitors who made deliveries charges paid. Customers who complained were advised that deduction for freight charges would be permitted when they remitted for the bill, provided they attached the freight bill to their check. Deduction of half the express charges was permitted on the same conditions. Our policy was definitely outlined to our salesmen, who in turn passed it on to their customers. After the first few months, all

difficulties in connection with the problem were ironed out, and today a complaint regarding it is very rare. These complaints usually are from customers who live a number of miles from their nearest shipping point. Goods shipped charges collect, are sometimes a source of great annoyance and inconvenience to such customers. Their cases are, therefore, treated individually.

The following percentages of freight and express allowances made by our four branches, prove that this problem, if treated in a specified manner, is practically identical in all parts of the country :

Norwich Allowances.....	.0031% of sales
New York Allowances.....	.0057% of sales
Chicago Allowances.....	.0053% of sales
Kansas City Allowances.....	.0044% of sales
Average	<u>.0046%</u>

These figures, of course, do not represent the total transportation charges on our shipments. How many customers fail to make deductions for freight and express charges we are not in a position to state. We have no figures to cover this point; but it is certainly very conservative to say that not more than 30% of our customers make deductions for transportation charges paid by them. The economy of this means of shipping is, therefore, self-evident. Besides, the actual saving of thousands of dollars because of non-deduction of charges, many thousands more are made available for other purposes because the customer bears the transportation expense until he remits for his purchases. However, the problem of Freight and Express Allowances has but one solution; that solution is to abolish them altogether. All transportation charges should be paid and borne by the purchaser. This end naturally cannot be attained without the concerted action and co-operation of the members of this Association. You are, therefore, strongly urged to discuss, pro and con, the wisdom of the adaption of such a policy.

Charges for Local Deliveries

If it is the sense of this convention that freight and express allowances should be abolished and that transportation charges should hereafter be borne by customers, it might be worth while going a step further and considering the possibility of making a fixed charge for deliveries to local customers. For the sake of argument, let us say a charge of 50c was made for all local deliv-

eries. This would permit charges collect shipments to cities which are now recognized free delivery points. Charges on shipments coming from out of town would be almost identical to those made by local concerns. To make such a system practical, it undoubtedly would be necessary to get the co-operation of jobbing houses. The problem presents much room for argument both ways and surely is much more complicated than that of allowances on out of town shipments. It is, therefore, submitted to you for your careful consideration.

At the conclusion of Mr. Haas' paper, the following discussion took place:

Difficulties in Way of Solution

MR. WHITE: The problem of freight and express allowances is a broad subject and it seems very difficult to arrive at any definite conclusion, for the reason that the membership are working under so many different conditions. Some of us are distributing from branch houses, others through the jobber and others from the home office, and it seems impractical under these conditions to sell F. O. B. Factory. We are faced with a freight increase of from 20% to 33½%, and it seems unreasonable to sell our product in our own town at the San Francisco price. I cannot see, with the difference of interests which exists within the association, how a logical conclusion can be reached. It is a very, very serious problem. We think that the freight rates are passed along to the consumer. It is done in a vague sort of a way by allowing the product to reflect the freight rate in the gross profit; whether it is sufficient or not is very hard to tell.

Another condition which has to be faced now is the clamoring of customers in certain sections and cities for store door delivery. In Washington, and I think in Albany, customers are demanding an allowance for cartage and insisting on store door delivery. If allowed in these cities, it will have to be allowed in other cities and an additional burden will be passed on to the manufacturer.

The Transportation Allowance Remedy

MR. BARTLETT: It seems to me there is an opportunity to accomplish a saving in transportation expense without going to the extent of eliminating it. In Canada our own firm, as did many Canadian pharmaceutical manufacturers, adopt a five per cent transportation limit. The innovation worked out splendidly.

Up to very recently all our Canadian shipments were made from one point, and that meant extremely long hauls to the Coast. Last year we decided to open a branch in Winnipeg and the question immediately arose regarding transportation cost. We realized that we would have to lay the goods down in Winnipeg, and then we would have our 5% from there; in other words, we would exceed our 5% allowance on account of having to lay the goods down in Winnipeg first. We discussed the matter very carefully, and finally came to the conclusion that we would try the experiment in Winnipeg of paying no transportation beyond that point, giving the customer the option of buying the goods in Winnipeg, F. O. B., or buying them in Walkerville with a maximum 5% allowance. We were very much gratified to find that the trade were so well pleased to have the goods nearer at hand with shorter hauls and quicker deliveries, that without a single exception they all took to the idea readily. We have not had any complaint that I know of, and we are making all of our shipments in Western Canada and the Canadian Northwest from Winnipeg strictly F. O. B. Winnipeg.

I feel that is a demonstration of the possibility of accomplishing something. Prompted by our success in Canada, we adopted on the first of this year a strictly 5% maximum transportation allowance in the United States. It is working out splendidly. We are standing pat on that proposition and it is saving us a great deal of money in our long haul business.

Of course it does not affect the short haul, because from most of our branches the shipments will not as a rule exceed 5%, although they do, to a very considerable extent, on mail and express shipments. We follow the same rule here, but I think there is a chance there for many of the houses to save themselves a good deal of money if they have got the nerve to put a limitation on. We at least know it is not costing us over 5%, and the average is considerably under 5% of the net invoice value of the goods for delivery. I am speaking now of the freight. On mail and express, the problem of local city deliveries is a matter which calls for much attention. There is a tremendous amount of abuse in the matter of store door deliveries, and I am frank to admit that we have not solved it yet, but I hope we will be able to.

WASHINGTON—THE NEW BUSINESS CENTER

**Address at the Ninth Annual Meeting of the
American Drug Manufacturers Association**

BY NEYLE COLQUITT

The subject assigned to me is: "Washington, the New Business Center of the United States." That may sound like an exaggeration, but it is a fact that, in a sense, Washington is the new business center of the United States.

Centralized Government

Since the days of Thomas Jefferson, when states rights and states sovereignty were considered the keystone of our institutions, down to the present day, there has never been a time when this country has not been going swiftly towards a centralized government. The old doctrine of states rights and states sovereignty, which the Southern people fought and died for and for which the states of New Jersey, Michigan, Delaware and others are now fighting strenuously, has been succeeded by what President Roosevelt would have called a new nationalism. We were drifting rapidly towards that, but it would have been 20 years or more, perhaps, before we would have reached the stage we have now reached had it not been for the World War which expedited that conclusion.

Whereas before the war in Washington we had, other than the Interstate Commerce Commission, the Pure Food and Drug Regulation Bureau, the Tariff Commission and the Federal Trade Commission, practically no large Federal bodies, the war brought about many exigencies which required special attention. Many new boards were formed and the old boards and commissions were given greatly enlarged powers. Take, for instance, the Federal Trade Commission; I happen to know that frequently after its organization there were many members of Congress who favored its abolition because there was not sufficient work for it to do. I doubt if there are any now who favor its abolition. I know that the Tariff Commission, when the war came on and imports were stopped, had no work to do. Daniel C. Roper, a glutton for work, chafing under the situation, resigned and took upon himself the Herculean task of administering the tax laws.

Growth in Size of Departments

And speaking of the tax laws: I was clerk of the Ways and Means Committee of Congress under Mr. Underwood, Chairman of

that committee. In 1915, shortly after the European War began, it became apparent that this country would have to raise additional revenue. The committee met. It was stated that we would have to have \$100,000,000.00 more revenue. There were members of the committee who simply said, "It cannot be done; you may rake the country with a fine tooth comb, burn the woods and sift the ashes, but you are not going to get a hundred million dollars." Mr. Underwood spoke up quietly after the discussion had gone on a while, and said, "You all are trying to raise a hundred million dollars without letting the taxpayer know it. I can raise a hundred million dollars without scratching the surface, but I cannot do it without letting the taxpayer know it." That was the situation exactly, and yet, within five years, we find the Finance Committee of Congress working on a bill designed to raise eight billion dollars, eighty times as much as was thought impossible five years before.

The Internal Revenue Bureau consisted three years ago of a personnel of 1,500; there are now more than 15,000 people in the Internal Revenue Bureau, and whereas they raised about \$100,000,000.00 from tobacco products and liquors, they now raise sixty or probably eighty times that amount.

The Excess Profits Law

In connection with the suggestion made by your President as to the abolition of the excess profits law, there has been a great deal said in that connection. It does not seem that the prospects in Washington are at all bright now for that; at least, not at the present session of Congress. They are now speaking of raising two billion more to pay the soldiers.

The excess profits law is a bad law because it not only imposes a tax, but it seeks to regulate your business. Under the powers contained in the bill and the regulations which were thereafter adopted, they actually tell you how you shall organize your corporation; they go further, they tell you what percentage of stock can be issued for trademarks or good will, irrespective of what your trademarks or good will are worth. They tell you, not what salaries you shall pay your officers, but if you pay them more than a certain departmental formula indicates you should pay, they say, "No." But you say to them, "I did pay that salary; we paid our President \$75,000.00; he is worth it and can get it from other like corporations." They say, "Yes, but our formula says you cannot pay but

\$30,000.00." I do not believe that would stand the test of the courts, but that is the ruling.

War Development of Departments

There are other commissions which have been formed since the war. We have the Prohibition Enforcement Department, with which you are all more or less familiar, particularly those who have been interested in the conferences we have recently been having in Washington with a view to amending those regulations. I will say, in that connection, that the Department was very favorably impressed by the presentation of that matter by the drug interests, in which your association was very ably represented by Mr. Stofer and others, and Mr. Kraemer's assistant did say that he thought the suggestions made were preferable to the present regulations.

Under the law the Tariff Commission, which was an idle commission for a long time, has been given new powers under the Longworth Bill. Indeed, if the German dyestuffs and drugs, about which we had a conference in Washington, are let in, the Tariff Commission will have the whole say so as to what dyes shall come in and under what regulations they shall be disposed of. Their recommendation will probably be followed by the State Department, although the State Department asked the opinion of the Drug Interests.

Duties and Powers of Departments

I will take your time just for a minute to outline some of the multifarious duties and powers of some of the larger bodies in Washington, particularly those which would interest this association. I notice that reference has been made to your commodity rates. Several hearings, I believe, have been set. My brother happens to be the Classification Agent of the Interstate Commerce Commission, and I heard him speak often of these commodity rates. Hearings, I believe, have been set for New York, Chicago and probably on the Coast. The freight rate classification, transit provisions, tariff requirements and rules and regulations governing transportation, are all within the jurisdiction of the Interstate Commerce Commission and receive its constant attention.

Interstate Commerce Commission

Freight rates, classifications, transit provisions, tariff requirements and rules and regulations governing transportation are all

within the jurisdiction of the Interstate Commerce Commission, and receive its constant attention. The tax which railroad freight rates imposed on business is supervised by the Commission, and constant attention is required to the end that the interests of the shippers may be protected. The tendency of the carriers towards a continued increase in freight rates is apparent. Often action is taken and a new rate in effect before the shipper realizes the extent to which his interests are affected. Full information with respect to the work of the Commission relating to the line of business in which the company is engaged, and a continuous and consistent policy with the Commission is a necessary part of the work of the traffic department of any large business concern.

Federal Trade Commission

The jurisdiction of the Federal Trade Commission over affairs of large business concerns engaged in interstate commerce is very extensive. The act under which it is created provides that if the Commission has reason to believe that any business concern has been, or is using unfair methods of competition in commerce, it may issue a complaint, institute an investigation and make an order against such methods of business. Such action by the Commission may be taken either of its own motion, or upon an informal complaint by any business concern. The scope of the work may be indicated by the matters that have already come before the Commission. These are complaints relating to predatory price cutting, inducing breach of contract, maintaining bogus independents, betrayal of trade secrets and confidential information, bidding up the price of goods purchased, combinations and threats to cut off competitors' supplies, disparagement and confusion of goods, unfair manipulation of guarantees against declines in price of goods sold, false and misleading advertising, misbranding of goods, instituting boycotts and threats to boycott goods, instituting vexatious actions and advertising such actions, influencing newspapers not to accept advertisements of competitors, employing systems of espionage, and enticing away competitor's employees, etc.

In addition to these matters, which are primarily contests between individuals in relation to private rights, the Board has general supervision, for the purpose of protecting the public interest, over the unfair methods of competition, and the prevention of unfair discrimination, tying contract, intercorporate stock holding, inter-

locking directorates, etc. In administering its functions the Commission seeks the hearty co-operation of business men throughout the country. It considers requests for advice as to the application of provisions of the law to specific cases, and the interpretation or construction of such provisions. It will give advice in reference to proposed acquisition of stock in competitive corporations, and generally will accord to the representatives of large business concerns informal hearings and conferences in which the aid of the Commission can be secured in determining questions of business policy so far as such questions relate to the legality of procedure contemplated.

While the investigations of the Commission contemplate public hearings no information is given out which would be an injustice to concerns investigated, nor is it the policy to disclose the name even of complainants.

Another part of the work of the Commission is the institution and carrying on of general investigations into various lines of business. The Commission has general power to investigate the organization and business conduct of corporations; to investigate the alleged violations of the anti-trust laws, and to recommend adjustments of corporations adjudged to be violating such laws; to investigate trade conditions in and with foreign countries, particularly with respect to combinations. Many investigations have already been instituted by the Commission. Among these are the matter of Co-operation in American Export Trade, Trade and Tariffs in South America, lumber industry re-sale price maintenance, the bituminous coal industry, etc.

The Commission also has power to require annual and special reports from corporations with special reference to the development under the supervision of the Commission of proper cost accounting methods. The Commission has power to examine the books for corporations, and to call upon them to furnish such information relating to their business as the Commission may require.

These broad powers bring the Commission into close touch with large business concerns, and make the Commission not only a kind of court of appeal in business disputes growing out of unfair competition, but an inquisitor, to a certain extent, and for the general good, into the management of corporations engaged in interstate and foreign commerce. While its jurisdiction over business affairs is extensive it is the aim of the Commission in making its

rulings and orders to promote business efficiency, and within the limits of practicability to co-operate with the business world in developing the best standards of commercial ethics. This attitude of the Commission contemplates the assistance and co-operation of business concerns, and a method by which the Commission can readily keep in touch with the plans and desires of corporations which can make use of the work for which the Commission was established.

Foreign Trade Advisers

Attached to the State Department is a bureau known as the Bureau of Foreign Trade Advisers. The chief duties of the foreign trade advisers are to control and direct, under the supervision of the proper executive officers of the State Department, the commercial work of the diplomatic and consular services, and to attend to correspondence and other miscellaneous business of the department relating primarily to trade, and to gather information and formulate advice on commercial subjects.

The foreign trade advisers are prepared to consult with the representatives of American firms respecting the markets abroad for their products in particular matters connected with their foreign business. Especially is it the function of the Foreign Trade Advisers to act for industrial concerns to assist in removing all obstructions that hamper foreign trade.

The routine features of the work are personal conferences with representatives of American firms whose interests are involved, and the drafting of the necessary instructions to diplomatic and consular officers in order to obtain such amelioration as may be possible, of the condition complained of. Along with this work is that connected with securing to American exporters equitable treatment for their goods under the tariff administrations of foreign countries. Complaints of American exporters in this respect are carefully studied, and the requisite instructions issued to diplomatic or consular officers. The advisers also assist in the settlement of the commercial disputes between foreign and American merchants, and, in general, stand ready to give advice and assistance in any matter relating to foreign trade.

Bureau of Foreign and Domestic Commerce

Connected with the Department of Commerce is the Bureau of Foreign and Domestic Commerce, charged by law with the duty

of "developing the various manufacturing industries of the United States and markets for their products at home and abroad. by gathering and publishing useful information, or by any other available method."

The Bureau not only has for use the investigation made by commercial attaches in foreign countries, but is equipped with a corps of special agents who are constantly making investigations. Elaborate reports relating to all phases of foreign trade are issued from time to time. The Bureau maintains a division of foreign tariffs for information in regard to customs duties and regulations in foreign countries which is available for use of American firms.

Departments Desire Advice

I have made little or no reference to Congress. The President has told you that in seeking Washington counsel, he was not seeking counsel there for the influence they might wield, but those who could keep in intimate touch with the departments. I want to say that our firm does not claim to have any influence in Washington. We know personally most of the heads of the large departments, and we do know that when you come to them in the proper spirit of co-operation, they will always lend you an ear. I know since representing this association during the past two months, that every bureau to which I have been has welcomed the advice and co-operation of this association and really been very happy that they have chosen counsel there, because with many of the bureau heads the subject is new and they welcome the aid of those who know. Take, for instance, the Bureau of Prohibition Enforcement; those men have never been in the drug trade, they do not know the drug trade intimately, most of them were formerly in the department for the administration of the whiskey laws; they are only too glad to get the attitude and viewpoint of this association and get helpful hints from them. Many of us chafe under government supervision and government control, which has come and been expedited by the war; I, for one, believe very firmly that if trade is allowed to go through its natural channels, the less government supervision we have the better off we will be.

In closing I want to say to the members of the Association that whilst the firm of Ellis, Ferguson & Colquitt represents the Association as such, and under its employment is expected only to attend to Association matters, we shall, nevertheless, under such employ-

ment, be very happy to serve any members of the Association on matters affecting their individual or firm interests, provided, of course, such service is incidental, rather than considerable.

I want to thank the members of the Association for their courtesy in inviting me to address them and to assure them that I shall avail myself of this opportunity to meet the members of the Association who are present at this Convention.



FOREIGN TRADE PROBLEMS

Report of the Committee on Foreign Trade at the Ninth Annual Meeting of the American Drug Manufacturers Association

During the past year the Foreign Trade Committee has devoted as much of its time as has been possible to the various issues in which the members of the Association are interested. Each member of the Committee, however, has had his own particular difficulties to contend with and for this reason perhaps our accomplishment has not entirely kept pace with our ambition.

Since the formation of the present Committee last summer a special subject has been studied by each member; to be more explicit, Mr. Donohoe has delved into the subject of drawbacks from the government. Mr. Greene has taken up the subject of Parcel Post, Mr. Ross the question of Trademarks and Copyrights, while Mr. Guerra has been working on securing a more favorable entrance of American samples and advertising matter into foreign countries.

All of these questions are of great importance to our members; further and continued study of each of them should, in the future, place valuable experience and data at the disposal of the membership.

Drawback

The exceedingly high Internal Revenue Tax on alcohol at present makes the drawback a necessity rather than a premium if the American manufacturer is to successfully compete with Europe. To get this drawback, however, is no easy matter. The government having naturally to protect itself against attempted fraud has established a system that is both complicated and cumbersome. Nevertheless, through patient work with the authorities, it is believed many of the present objectionable features may be ameliorated—touching upon this a statement made by Mr. Donohoe of our Committee is attached hereto.

Parcel Post

Since the signing of the Armistice there has been a very material improvement in the Parcel Post situation—several entirely new fields having been opened, while in many countries the maximum weight limits have been doubled.

Your Committee can scarcely claim any great credit for these improved conditions since trade organizations throughout the coun-

try have been working unremittingly to secure better service. There is now in Washington a National Advisory Committee devoting its entire energies to this project. Though our voice is but one of many it tends to swell the general chorus which in the end will not be denied.

Each country represents a separate issue because of its own postal regulations—this is evidenced by the conditions in the Argentina where the writer has made some special efforts to secure relief from an unreasonable imposition of charges; the facts in part are set forth in the attached memorandum.

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Trade Marks and Copyrights

Another subject which has received consideration and one that is of vital importance to our members is that of Trademarks and Copyrights. The second-story man who derives a livelihood from stealing manufacturers' trademarks is quite as agile in practicing his profession right now as in the past.

Quite recently one of our members, Johnson & Johnson, have had the experience which in recent years has come to a great many American manufacturers. It seems that at the moment they are having difficulties in the Argentina, in Brazil and in Mexico. In Brazil the usual method was adopted. A native having no rights, of course, in any of Johnson & Johnson's properties, nevertheless registered two of their trademarks. He subsequently prevented them from shipping their own goods under their own private names into Brazil. The matter was finally compromised by payment of a considerable sum, the Marks in question then being transferred to Johnson & Johnson's representative.

Some of our members will wonder how this can be possible in view of the Berne Convention, the Pan American Convention, etc. As a matter of fact, the United States is not a member of the former, and the second is not as yet in operation.

The Pan American Convention is a very promising achievement. Sad to relate, however, as yet it is simply a promise. It was adopted in Buenos Aires by the United States, together with all of the Latin-speaking countries to the south of us August 20, 1910. According to Article XVI, the Convention does not become operative until two-thirds of the signatory countries have each passed laws approving the measure.

After a lapse of ten years it must have been very gratifying to our members to have learned that the new United States Trademark Bill was finally signed by the President March 19th and that it becomes effective at once. The Bill in question is quite an important and a lengthy measure and should be carefully studied by those of our members who are particularly interested in the subject. The fact that the United States has now passed this very important law will enable us with good grace to urge some of our southern neighbors to do likewise. It is a step in the right direction.

It is likely that some time will elapse before there is actual and complete co-operation as planned by the Pan American Convention. In the interim, therefore, those who contemplate doing business in the Latin-speaking countries should be very careful to protect themselves fully as to Trademarks in each of the separate countries individually.

Other Committee Activities

In the foregoing the writer has attempted to give the members a general idea of what this Committee is doing. There are, however, other activities in which we are engaged and these perhaps are the most important of all. The value of the Foreign Trade Committee to the Association must largely rest in the fact that they are constantly on the watch so as to be able to combat obstacles as they arise. For instance, your committee has been successful in aiding the representatives of the Statistical Division of the Treasury Department in formulating a method for compiling export figures which convey all needful data without imposing any hardship upon the exporter.

More recently your Committee has taken a hand in solving the difficulties concerned in the narcotic regulations pertaining to exports. While this at first promised to be a source of very great annoyance at present an understanding has been reached which we believe takes care of the situation satisfactorily for all concerned.

Naturally from time to time we receive S. O. S. messages which require instant attention, and while all of these acts are scarcely worth recording, nevertheless, without some such agency as your Committee, annoyances, even losses, might be experienced by our members which are now usually avoided.

Foreign Exchange

Since your Committee made its last report, many changes have taken place in the export situation. The drop in European Ex-

change has further complicated our commerce with Europe. In spite of this, however, American export trade, as a whole, has continued to reach rather amazing figures. There can be no doubt, that no matter what European developments may be, American export trade is fixed upon a firm foundation and, as a whole, it will surely continue to develop. What may be lost in some of the European markets will be redeemed in those countries which have not had to pay the tremendous war penalty visited on those nations directly engaged in the great war conflict.

Shipping

As Americans we may well be proud of our ship building record and that the American flag bids fair to again permanently occupy a conspicuous place upon the oceans of the world should be a happy augury for the future. Shipping is indeed slowly, but surely, working back to a normal basis and our present difficulties are due more to continuous strikes than to a lack of tonnage.

There has been a very material reduction in rates as the following examples will serve to show.

To Buenos Aires the pre-war rate was \$15.00 per ton, high point \$120.00, at present \$17.00 per ton. To Sydney the pre-war rate was \$15.00 per ton, high point \$60.00, present rate \$30.00. To London pre-war rate was \$6.00 per ton, high point \$70.00, at present \$30.00 per ton.

It will be seen from the above that while we have not as yet reached pre-war rates, nevertheless there is a wide difference between the maximum rates and those now ruling.

European Competition

European competition, slowly awaking, is gradually coming to be felt. The writer, recently returned from a trip to Cuba, had visual proof of the fact that before long American producers of chemical, pharmaceutical and biological products will again have to take Europe into account. There, however, as here, the great difficulty is under production, a condition from which, unless all signs fail, it will take months and more likely years to emerge.

Various travelers returning from abroad have pointed to the present as a wonderful opportunity, because of low prices, to secure proper housing in Germany, France, Belgium, etc., for our Embassies and Consulates. It would seem proper for this organization, working in conjunction with the National Chamber of Com-

merce, to urge measures like this—to bring them constantly to the attention of the Washington authorities. It is only by such means that the National Legislature can be spurred into action.

The industry which this organization represents is a vital one and its needs will be listened to by our law makers who are anxious to co-operate with the business of the country; it is our duty, therefore, to unceasingly urge those reforms which promise beneficial results not for us alone, but for American industry as a whole.

The writer desires to express his thanks to the other members of this Committee who have been ever ready to contribute their efforts to make the work of the Foreign Trade Committee helpful and effective.

Very respectfully submitted,

OSCAR W. SMITH, Chairman.



SOME SALESMEN PROBLEMS

Report of the Committee on Commercial Travelers Read at the Ninth Annual Meeting of the American Drug Manufacturers Association

The report of your Committee on Commercial Travelers does not represent simply the handiwork of the chairman, but is composed of contributions from each member of the Committee after the excellent fashion set by the Committee on Commercial Travelers of last year. You have in short a report in five chapters on as many subjects that we believe of the most moment and the most practical interest to the membership at this time. They have been arranged in what appeals to us as their most logical order as follows:

"Selecting Salesmen," by Mr. Woods A. Caperton.

"Instructing and Educating Salesmen," by Mr. Edgar W. Emory.

"Compensation of Commercial Travelers," by Mr. R. D. Keim.

"The Use of Automobiles by Salesmen," by Mr. E. J. Barber, and

"The Attendance of Commercial Travelers at Pharmaceutical and Medical Conventions," by Mr. W. A. Tainsch.

If we have repeated some of the subjects of last year's report we offer the excuse that it is impossible for a committee to exhaust their possibilities in one year's work.

This concludes the preface and we are ready for the first chapter.

Selecting Salesmen

In attempting to discuss this subject it immediately impresses one with the idea that there are almost as many methods of selecting salesmen as there are sales managers.

First, let us consider the sources from which salesmen are chosen. We find that in the American Drug Manufacturers' Association salesmen are chosen from a number of different sources.

1. Splendid men are developed within house organizations from manufacturing and shipping departments.

One sales manager will keep in close contact with the superintendent of the manufacturing department and the employment manager, telling each that he would like to train as many good men as possible for traveling positions. Usually men who are trained on the inside of an organization know the policy of the house,

quality of the line, manufacturing conditions, and, generally speaking, make splendid timber for sales positions.

2. From retail stores.

Sales managers frequently visit retail stores, making pleasant acquaintances with the managers and clerks. Many valuable additions to traveling staffs are added in this way.

3. From wholesale employees.

Frequently well-worth-while applications are received from wholesale drug employees.

4. From the medical profession.

Your own representatives in calling on physicians in the interest of your line can be of great help in locating physicians for your sales department.

5. From applications made in person as well as by mail.

Some sales managers closely follow up applications that come in by mail or personal applications made at the office. Some sales managers interview a salesman and pass him around to a regular battery of interviewers; then all meet together and have their say regarding him with no special systematic rating system. It is simply a question of likes and dislikes—guesses, as it were—and many times injustice is done in following this method.

To my mind, one of the best methods of choosing salesmen is to first let it be known that only the highest class of applicants will be considered.

It is well to let every applicant understand that there are **no snaps** in your sales department, that every representative must work more hours a day than he does in a wholesale or retail store if he does his duty.

It is also well to let an applicant understand at the outset that if he is successful in being appointed to your sales staff, he is to be a real representative of the house and not misrepresent you in indulging in gambling, drinking or carousing, for such conduct will be cause for summary dismissal.

It has been found that one of the best methods of choosing desirable representatives is about as follows: The information clerk announces to a sales executive, "Mr. Blank wishes to make an application for a sales job." The sales executive asks that he be sent in. Immediately he comes in to an assistant sales executive's desk, who greets him cordially, talks to him for a few minutes and pre-

sents an application blank on which questions concerning the applicant's education, past experience, etc., are brought out.

After the applicant fills in an application blank, the assistant to the sales executive has from fifteen to thirty minutes' visit with him, during which visit a rating sheet, arranged similar to that used by the United States Army, is made out, showing what this executive thinks of the applicant. The applicant is then passed on to the employment manager, who interviews him for a short period and also makes out a rating sheet on the man. He finally comes back to the sales manager, who has from fifteen to thirty minutes' interview with the applicant, and he likewise makes out a rating sheet. These three rating sheets are all made up entirely unknown to the applicant. At a signal from the sales manager, the young lady in charge of records takes the three rating sheets, strikes the average of the three interviews according to the three rating sheets, and if this average is 60 per cent or above, the applicant is given a certain line of tests or questionnaires. These questionnaires test a man's ability to think fast and accurately, his imagination, educational training and his general fund of information. These tests help determine quickly and accurately his qualifications. The ratings by the three executives, as a rule, check very closely with the tests or questionnaires.

The reference should then be thoroughly investigated and the applicant told that he could have an answer on or about a certain date.

The rating by three executives at different times pits one sales executive against the other in picking successful men, and inasmuch as the employment executive in a sales department who is the most successful "picker" of salesmen is the most valuable man to a sales department, it keeps all three executives on their toes to give each applicant a **fair, square and honest rating.**

Sometimes an applicant will come in and on first glance at him, some sales managers would say immediately, "I like him" or "I do not like him," but after talking with him, asking questions pertinent to the line, getting his reaction, putting him through a list of questionnaires, helping him, as it were, to forget he is applying for a job, bringing him in an attitude of losing himself, so to speak, and being as natural as possible, they find that this oftentimes assists in quickly getting an accurate line on the applicant in question.

Most applicants are nervous when they apply for a sales job. Another good way to help them over that is to ask some such question as "Why do you want to sell this line?" or "Why do you think you can sell this line?" "What would you do under such and such circumstances?" "What do you think would be your difficulty in this line?" "What are your weaknesses?" "What are your good qualities?" You will frequently get a close insight into the real man by these questions and his answers when put face to face with such questions. It is then that you have an opportunity to pick the well-balanced from the poorly-balanced.

Loyalty and Americanism

It goes without saying that without loyalty the salesman is not 100 per cent for his house. That is, of course, of prime importance. There are other forms of loyalty than loyalty to one's house, the most important of which is loyalty to one's country and to one's flag. An efficient salesman, one who displays the proper amount of good judgment and common sense, is always loyal to his country and will not permit anyone to discuss any sort of propaganda that is detrimental to the best interests of America. Whenever any customer or fellow-traveler begins to kick against the government, and how it is playing in the hands of such and such a nation to the detriment of other nations, then and there is it time to call a halt and let the party discussing such propaganda understand that the salesman will not stand for any such slurring remarks. This is an important subject and one that every sales organization should be trained in for whatever benefits America benefits us individually.

Instructing and Educating Salesmen

One of the problems which has always been a serious one is to get new salesmen on new territories to reduce their selling cost at as early a date as possible after starting out.

Our problem probably is different than that of many of the firms in this association, as we have recently started to enlarge our selling field and most of the firms represented have a good national distribution and some international.

Of course, in starting in a new field a concern is generally all but unknown, and for this reason it is a real necessity to equip your salesman in the best possible manner for doing business. Unless a man knows his house and his goods and has confidence in

both, he is working under a handicap that will take a long time to overcome.

The only way for a salesman to get acquainted with the concern is to live with them for a period of time. A good way to get confidence in the goods he is going to sell is to see them manufactured, sold and re-ordered, which last is the basis of all successful selling.

About four years ago we started the scheme of bringing all new salesmen in to the office and laboratory for a week or more of training, having in mind the ideas spoken of above and others which will be mentioned.

When the new man is hired he is told that his salary and expenses will be paid from the time he starts his training (expenses being paid by us for his transportation from and to his home city). He is instructed to report to the office manager who has made arrangements for his accommodation while at the laboratory.

The new salesman is then turned over to the superintendent whose duty it is to see that he is shown over the laboratory thoroughly. Some of the men have worked in different departments, but we do not encourage that now, as we feel that the benefits gained do not justify the expense.

In this way new men get a first-hand idea of the quality of the goods we are making and the quantities that are being sold. All departments are shown and the work thoroughly explained. They are introduced to all department heads, not only in the laboratory, but in the business departments. We have found by experience that the acquaintances made in this way seem to tend to great loyalty to the house, salesmen getting the impression that we are like a big family. We certainly feel very fortunate in having such loyal salesmen as we now have and we think this seemingly small point is in part a reason for it.

Salesmen are encouraged to ask questions, and these are fully answered. When the laboratory has been thoroughly inspected, salesmen are taken into the office, where they work on their price lists, both correcting and studying them.

They are also given instructions in regard to making out orders properly. We have found it a good idea to have them make out sample blanks of each kind used. In this way we save a lot of correspondence after the men go on the road.

They are required to study carefully prepared selling talks on all our specialists. These selling talks are a combination of all selling points which we obtain from every salesman who travels for us. We might say here that we get these points at our sales conventions which we hold frequently and by requesting every salesman to write out all good points and send them in by mail.

The sales manager superintends the selection of his samples and sees that he does not have unseasonable goods to take out. He also gives the salesman an idea of what goods we are most anxious to sell and upon which he should concentrate his effort.

When the time comes for the salesman to go out on the road he is given this last thought to take away with him: "We are putting you on the road to represent our house. We are putting our reputation in your hands. Do not misrepresent us nor spoil our reputation. Be honest with yourself and you will be honest with us."

Compensation of Commercial Travelers

In a survey of the problem on the compensation of salesmen, a well-known authority on subjects of this kind writes: "The weakness of most compensation plans is that they are a relic of the days when the fear of being out of a 'job' was a constant nightmare. Your modern salesmen must be led, not driven. The 'poor-house over the hill,' an ever-present reality to the salesman of a generation ago, is beyond the horizon of the salesman of today."

During the past two years, sales managers have been confronted by their most loyal men with such serious questions on the problem of living on their incomes which, in normal times, were adequate but which now have shrunk in the exact ratio to the purchasing power of the dollar today that it has required almost the wisdom of a Solomon and the diplomacy of a Disraeli to overcome the general feeling on the part of "the man on the road" that he was not being dealt with fairly in proportion to the efforts he has expended and the results he has accomplished.

Furthermore, not alone has there been a scarcity of good timber for salesmen at salaries which have obtained in normal times, but the unusual prosperity which has been and is at this time being enjoyed by the skilled mechanic and workers in other fields of endeavor has had its effect in causing a defection from the ranks of many sales organizations.

Is it any wonder, therefore, that sales managers, during the past two years, have burned more of the midnight oil and spent more of their waking hours in worrying and struggling with the problem of compensating their salesmen than the time they have spent on all their other problems combined?

Progressive business men have come to recognize the fact that salesmen must be given an incentive to produce a larger volume of profitable business and a share of the profits accruing to the House from the sales they accomplish.

The tendency then is toward the adoption of compensation plans which embody either a profit sharing arrangement or a bonus for increased efficiency and larger profits from business produced.

It is quite obvious, therefore, that the "up to the minute" sales manager will discard as quickly as possible the antiquated methods of compensating salesmen on the straight salary and expense allowance or straight commission basis.

While it is impractical and quite impossible to apply any fixed rule or process in solving the problem before us, because every compensation plan must be worked out to fit in with the line of business in which it is to be used, the writer will endeavor to cover, in a general way, a plan of compensation which may be perfected for practical use and applied to lines where a large number of products are sold at a varying margin of profit.

The Group Commission and Guaranteed Drawing Account Plan

Under this plan, it is necessary first to establish six important factors:

First: To analyze the business produced by each sales territory by grouping all products sold into groups in accordance with the percentage of gross profit their sale yields.

Second: An analysis must be made of the selling and distributing costs in each sales territory.

Third: The classification of sales territories according to the volume of business they are producing and their potential possibilities.

Fourth: The establishing of a sliding scale of commissions whereby the highest commission will be paid on sales of "High Power" products and graduating commissions down to the products which yield the smallest return.

Fifth: A sales quota should be established on each group of products for each sales territory.

Sixth: A basic drawing account, covering salary and expense allowance, should be established.

When these six fundamental factors have been ascertained and established, a plan of compensation can be worked out which will not alone insure each salesman a living wage, but will also give him an incentive to produce a larger volume of profitable business since he will be able to increase his earnings in the direct ratio to the results he produces.

Additional impetus can be given a plan of this nature by instituting sales contests for which special bonuses or prizes are offered. Such contests present a splendid opportunity to play up the human interest and spirit of good sportsmanship which usually pervades an aggressive sales organization.

Wherever there is a lack of stimulation to salesmen which will promote friendly rivalry, no matter how attractive the proposition that is to be sold or how generous the remuneration, the results obtained will fall far short of those secured by an organization in which there is one hundred per cent loyalty, enthusiasm and esprit de corps.

The Use of Automobiles by Salesmen

If anyone expects this report to indicate a clearly defined or even approximately uniform method adopted by our members in solving the problem of salesmen's automobiles, he is doomed to disappointment.

Our present study of this question, as well as Mr. Caperton's report of a year ago brings out two facts most prominently:

First: There is not even a near approach to uniform practice in meeting this problem.

Second: The use of automobiles by salesmen is so closely allied to the problem of salesmen's compensation as to form a part of the latter rather than a separate question by itself.

All that this report can do is to present a few of the numerous methods adopted by individual companies—partial solutions of the problem and perhaps no less interesting and helpful, because they are so varied.

In the first place, there is apparently no agreement as to whether the use of automobiles by salesmen results in sufficient advantages to offset the expense and disadvantages incurred. One manager considers it "a necessary evil"; another writes:

"On quite a few occasions we found it necessary to serve notice on a salesman who owned an automobile to either dispose of the car or send in his resignation, and there have been only a few instances in our experience where the use of automobiles in connection with sales work has been the means of the salesman increasing his business."

"There is a common saying that a man who owns his car should divide his time in three portions: eight hours for work, eight hours for sleep and eight hours to repair his automobile."

"On one occasion my introduction to our salesman was to find him underneath his car in front of a drug store."

Thirty-six replies were received in answer to our questionnaire of March 8th.

Ten of the thirty-six companies report that they have no salesmen using automobiles for business purposes. From the remaining twenty-six the information obtained can be summarized as follows:

Seven select some specific make of car for salesmen's use—five Ford; two Dodge.

Nineteen leave selection to the salesmen themselves.

Four buy and retain ownership of the cars used by salesmen.

Ten advance part or full price, though the salesman buys and owns the car.

Twelve have their salesmen finance the purchase of their automobiles without company help.

Four estimate cost of operation, including depreciation, the minimum estimate being 5 cents per mile and the maximum 8 cents.

Twenty-two do not attempt to figure accurate mileage costs.

Nine companies require itemized expense accounts.

Eleven make flat allowances to cover automobile operating expenses.

Six pay salesmen on a strict commission basis and make no separate expense allowance.

It is interesting to note that of the five companies specifying Fords for their salesmen, two recommend Ford coupelet, two Ford roadsters and one Ford touring car.

The members quite generally either purchase or assist the salesmen in purchasing automobiles. Such assistance is without exception in the form of a loan, the amount being somewhat dependent upon the value of the car purchased. In general, however,

the loan is limited either to some fixed amount, \$500, \$1,000 or, in several instances, to the delivered cost of a Ford.

Repayment of the loan is usually provided by monthly deduction from salary or commissions, with an evident attempt to have the loan entirely liquidated within twelve months from the date of purchase.

In reply to the question as to total cost per mile, one of the companies brought up the further question as to whether it was a part of economy to dispose of light cars after a third season, or, perhaps better, after a definite number of miles. Individual opinion on this question is too widely divergent to permit any general answer as is evidenced by the fact that two men in the same office and working on the same cost figures reached diametrically opposite, though apparently equally substantiated conclusions, one proving that the car should be retained and the other that it should be replaced.

By far the most interesting information developed is in connection with the individual methods adopted for meeting the upkeep and operating expenses of automobiles as used by the salesmen.

Where a man is working on a strict commission basis the matter of automobile operating expense is, of course, a comparatively small problem, for either directly or indirectly it is paid by the salesman himself.

The solution of this problem where salesmen are on a salary basis is much more difficult, with opinion apparently equally divided between flat allowances and itemized expenses. As indicated by the above, several of our members favor flat allowances. One company makes an allowance of flat \$2.50 per day to city salesmen and flat 7 cents per mile to the men covering country districts. Two others report automobile allowances of \$2.00 per day to their city men and \$3.00 to \$3.50 for their country salesmen.

One manager requires itemized expense accounts but allows an additional 2 cents per mile to take care of depreciation. His salesmen own their own cars.

The problem is even more complicated where cars are company owned but used by salesmen for personal as well as business purposes. One company in this position requires a detailed expense account, pays the account in full, but charges back to the salesmen each month an amount equal to 5 cents per mile for such mileage as is reported for personal as contrasted with company

business. The comment was made, however, that even otherwise honest salesmen seem quite inclined to "forget" the matter of personal mileage reports.

One fact is clearly established, namely, that the easiest answer to the entire question is to pass the problem on to the salesman by paying him either a flat amount or a straight commission and leaving to him all responsibility both for the purchase and the maintenance of his car. It would be very interesting if it could be determined how many of our members have been influenced toward a strict commission basis for their salesmen on account of the difficulties otherwise encountered due to the problems presented by salesmen's use of automobiles.

While in some territories and with some salesmen the use of automobiles will not result in sufficient increased business to justify increase in expense, their use is apparently increasing at a rapid rate and the problems thus presented must be squarely faced.

It is our hope that some of the various methods reported above may prove of benefit to our members and that more careful analysis and study of the salesmen's automobile problem may in the near future permit this and other associations to recommend fairly definite measures whereby the present disadvantages may be eliminated and the very real advantages retained.

Attendance at Conventions

It would not have done the subject justice for me to have written this based alone upon our own experience and our own conclusions. So a questionnaire was mailed to all fellow members and these questions were propounded:

Do you have salesmen attend Pharmaceutical Conventions?

Do you have salesmen attend Medical Conventions?

If you have salesmen in attendance at either, what do you figure cost involved per day?

Do you exhibit at Pharmaceutical Conventions?

At Medical?

If so, in either case to what extent?

Do you consider that these exhibits and the friendship growing out of the social side of conventions conducive to results justifying the cost?

At the time of writing twenty-eight replies had been received showing the following computations: Thirteen responded that their

salesmen attended Pharmaceutical Conventions, six Medical and two, both Pharmaceutical and Medical, making a total of twenty out of twenty-eight who had representatives in attendance at both Pharmaceutical and Medical Conventions. Of these twenty, twelve affirmed that the results obtained warranted the cost involved. Eight definitely indicated to the contrary.

Three out of twenty stated that they exhibited at these conventions. Of the eight who do not have travelers in attendance, three designated that they do not travel salesmen at all and of the remaining five two answered "no" to the last question, as well as to all others, which we would take to mean that while they were not in favor of the practice now, their conclusions were based upon past experience.

The cost per day to have salesmen attend Pharmaceutical and Medical Conventions seems to range from \$10 to \$20 with one member having reported \$125 to \$150 a day. The latter incidentally also replied "yes" to the query if it paid, while a few others whose expenditures range from \$10 to \$20 daily have expressed themselves as desirous of learning ways and means that would tend to reduce the cost.

The tabulation given of the results of the poll will enable interested fellow members to make their own deductions. It was surprising to me, however, to observe that nearly half of those who have salesmen in attendance at these conventions do not consider that it pays, yet the while continuing the practice. This may be considered consistent, nevertheless, for as one member says, the habit having been formed it is well to play it safe by not making one's self too conspicuous by his absence, though conscious that the results accruing are not compensatory.

Taking the eight who say it doesn't pay, the two who replied "no" to all questions, considering particularly their "no" in answer to the last question, and those who responded in the negative to all but the last one, the signs would seem to point to diminishing enthusiasm. Eliminating calculation of the three who travel no men, we have less than half of those who responded showing an attitude that would not seem to even slightly encourage greater attendance.

To my mind, any injustice that may be done the plan of having salesmen attend Pharmaceutical and Medical Conventions is made possible more than anything else by the fact that results, good, bad

or otherwise, are intangible. This is a day of definiteness, and when we expend money we expect a definite, tangible return. And that I believe is the chief reason there seems to exist an apathy toward more general attendance.

Discussion on the Report of the Committee

The following discussion took place on the report of the Committee on Commercial Travelers:

Salesman Compensation

MR. MERNER: I feel that the drug trade justifies salesmen who are entitled to a big income. If men who justify a small salary are employed the whole industry is kept down to their level, because the chief point of contact with the trade is our representatives on the road.

MR. WHITE: In most territories the salesman is really the company. It is one of the penalties of a large business that the principals cannot keep in personal touch with the customers; that has to be delegated to the man on the road. I think most of us recruit our salesmen from the retail drugstore. Several decades ago the drugstore had the pick of the young men of the town. That, alas, no longer holds good, and the man with a good academic or college education is looking beyond the retail store from whence come our salesmen recruits. Year by year it is getting exceedingly hard to get high type of men.

I agree that the drug salesman is not compensated according to the scale of men in other lines, but we must have sufficient profit to permit the employment of men who are commercial ambassadors and not mere order takers.

THE PRESIDENT: I wish to ask Mr. Merner on what basis he would compensate a salesman.

MR. MERNER: The best method, I think, is a combination drawing account and commission arrangement; in other words, base the income on the sales so that there will be an incentive for the salesman to sell more goods.

MR. BARTLETT: I am afraid some of our members are going to find it increasingly difficult to find suitable men to take positions as traveling salesmen in the pharmaceutical line. It is one of those evolutions that seems to be going on in every direction.

A report came to me the other day that in Chicago men are finding no difficulty in securing positions as retail drug clerks at \$75.00 a week,

the reason being that, in Chicago particularly, they are seemingly taking advantage of some of the possibilities under our 18th amendment. Under the regulations a druggist is allowed to buy 100 gallons of whiskey a month, and he is allowed 100 prescriptions a month from a physician, and if he can get 8 physicians to prescribe 100 pints of whiskey each per month, he disposes of his 100 gallons of whiskey, and the clerk who receives the \$75.00 a week is not expected to sell drugs, but whiskey.

It is all very well to say that the pharmaceutical salesmen should have more money, and I agree with that, but when it comes to paying a man \$3,500 or \$4,000 a year as a starter, why it seems to me the thing presents very considerable difficulty. I do not know whether that obtains in other sections of the country or not; it is very acute in Chicago at the present time.

Salesman Compensation Problem Adjusts Itself

MR. SAILER: I do not believe it is practicable to gauge the remuneration of a pharmaceutical salesman by other lines. I not believe you can gauge a pharmaceutical salesman the same in all sections. He may have a well developed territory from which you expect a very handsome volume of business, or he may have a pioneer territory in which you cannot hope to have him return anything but a small volume of business. If the latter man were to depend on a commission or a drawing account and commissions or percentage basis of any kind, he would starve to death; whereas, in the other territory in which you have expended a great deal of money over a long term of years, you necessarily expect a good profit and to be able to pay a salesman well for his work.

I am inclined to believe that water will seek its own level in this instance as well as all others. I do not believe you can keep a good man down. As for the men with whom I come in contact in the field, I do not find that they have any very great difficulty in getting all they are worth, particularly in the last 2 or 3 years. If they cannot get it from one house, they don't seem to have a great deal of difficulty in getting it from another.

I think it is a question which each house must determine for itself. I do not believe that any fixed rule can be laid down.

I do find that the salesman remembers he did a business of \$20,000 or \$30,000 two or three years ago, but forgets that the same tonnage moved today amounts to twice that much. He is figuring his

commissions on the larger selling price, and losing sight altogether of the increased cost of moving the goods. And as far as my experience goes, he has not any hesitancy in bringing the figures to the front, and I have not been at all successful in persuading him that he is worth any less money than he asked for. (Laughter.)



REPORT OF WAR SERVICE COMMITTEE

**At the Ninth Annual Meeting of the
American Drug Manufacturers Association**

Since the signing of the armistice your War Service Committee has been practically inactive with the exception that we exchanged some correspondence with the Purchase, Storage and Traffic Division of the War Department in connection with surplus stocks of medical supplies with a view to establishing a practicable plan of disposal.

Disposal of Government's Surplus Stocks

On November 24, 1919, at the request of the Purchase, Storage and Traffic Division, the following members of the War Service Committee, Willard Ohliger, Chairman, Charles J. Lynn, R. C. Stofer, Adolph Rosengarten, A. Homer Smith and W. C. Abbott, representing the pharmaceutical and chemical manufacturers and Mr. H. C. Lovis, representing the surgical dressings group, met with Colonel L. M. Purcell, Chief, Surplus Property Division, Mr. E. E. Squire, Chief, Quartermasters Stores Section and Mr. A. L. Mercer, Assistant Director of Sales, and went over with these gentlemen the inventories of medical supplies which had been declared surplus and suggested a plan for their disposal. The amounts available for surplus as of that date were not excessive to the degree that market conditions would be influenced to any appreciable extent if disposed of in the usual manner. However, your committee offered the following recommendation:

"It is the recommendation of the War Service Committee of the American Drug Manufacturers Association that as to pharmaceutical and medicinal chemicals and surgical dressings on the short list—First: That the War Department submit this list to the official government bidders on such medical supplies, the list to include name of article, the package unit, the total quantity offered, name or names of manufacturers, together with the quantity represented by each manufacturer's label, location and the shipping package. Second: That in submitting this list to the original bidders, the cost price be omitted and in the event that all the articles offered are not covered by acceptable bids, any surplus be disposed of at public auction, or otherwise to the highest bidder."

This recommendation was not acted upon at that time. However, under date of November 19, Mr. A. L. Mercer, Assistant Director of Sales, wrote that "it is very probable that we will follow your recommendations ultimately for the reason that they are very practical."

According to a letter written by Mr. Guy Hutchinson, First Assistant Director of Sales, under date of March 12, 1920, the plan immediately adopted for disposing of these stocks is as follows:

The stock known to be available as surplus was compiled into Medical and Hospital list No. 1, prices were affixed on all items

approximating as near as possible 20% under the price at which hospitals could purchase on the open market, and copies of this list were sent to every hospital, dispensary, etc., in this country offering those institutions an opportunity to purchase in minimum quantity lots as shown in the list. This offer was made for the month of February but the time was later extended to April 5.

Another list, known as Medical and Hospital list No. 2, was also approved which contained a considerable quantity of drugs and medicines which will be advertised and offered for sale by bids, these to close on April 15, 1920.

The above plans are being tried out but if they do not prove successful we have been advised that our plan, as stated in our recommendation, will be put in operation.

In view of the fact that there seems to be nothing further for this War Service Committee to do, we respectfully recommend to the Association that it be discharged.

Respectfully submitted,

WILLARD OHLIGER, CHAIRMAN.



REPORT ON SOCIAL INSURANCE

**At the Ninth Annual Meeting of the
American Drug Manufacturers Association**

Present Status of Social Insurance

BY HARRY B. MASON

This being an off year, legislatively speaking, there isn't much to report regarding the movement for compulsory health insurance. During the past winter interest has very largely centered right here in the State of New York. As a matter of fact, indeed, the leaders of the movement have largely concentrated their forces on New York ever since they were so effectively defeated in California two years ago.

Opponents Gaining Strength

There is now pending in the legislature of this State a bill providing for the realization of compulsory health insurance. This is the fifth annual measure of the kind. Last year the struggle was most dramatic. It looked for a week or two as though the proponents of compulsory health insurance would triumph, but the day was finally saved. This year it would appear that the opposition is much stronger. We gather from what we are able to learn that the present bill is not likely to succeed. Not only are its opponents much better organized and far more powerful, but the legislature seems to have troubles of its own and the Davenport measure has become more or less of a side issue.

New York State, indeed, is admirably organized against this fanatical movement. The Merchants' and Manufacturers' Association, with which our body has been affiliated, has carried on a very effective campaign of education. The New York League for Americanism has likewise stepped into the breach and has done most effective work in showing up the sophistries and fallacies of the scheme. And the three groups most directly affected, namely, the physicians, dentists and druggists, have here and there throughout the State co-operated in the establishment of "guilds" and have fought compulsory health insurance tooth and nail.

These "guilds" did heroic work last fall. During the campaign just prior to the November election, a working committee was appointed in each assembly district composed of two physicians, two druggists and one dentist. Each committee called on the candidates for both the Assembly and the Senate to ascertain their views with reference to compulsory health insurance and to ask for a pledge of opposition to any bill providing for such insurance. A fight was

promptly waged against those candidates whose views were held to be contrary to the public interest, and the result was that ten of them went down to defeat. This furnishes one reason why the legislature this year is not quite so keen for compulsory health insurance as it was last.

Passing by the situation in New York State, it may be said, as we have already intimated, that the issue has not elsewhere been a very active one during the past winter. New Jersey seems at the moment to be in favor of compulsory health insurance, but the "guild" idea is being developed in resistance to it, and the history of New York State will doubtless be repeated. Pennsylvania has agitated the subject, but has done nothing acute. The sentiment for such insurance in Ohio, under a little stimulation from Governor Cox, is rather favorable to the scheme. Indiana has a commission at work, but it is apparently not active. Wisconsin has entertained some discussion of the subject, but has apparently not gone beyond the debating stage. The issue has been a fairly live one in Minnesota, where it forms a part of the propaganda involved in the so-called Non-Partisan movement, but nothing is threatened for the immediate present.

So much for the situation at the moment. Now a few words about the character of the movement in general. These questions are frequently asked: Who are the advocates of compulsory health insurance? What sort of friends has the scheme got anyway? How active are they? What is the danger of success?

Advocates of Compulsory Health Insurance

We should say, after a pretty careful study of the movement compassing several years, that the advocates of compulsory health insurance divide themselves very naturally into the following classes:

1. The original group of academic doctrinaires and sociologists. These men for the most part are university teachers, and they sincerely believe themselves to be right. Unfortunately, as Samuel Gompers says of them, they are not open to conviction. They are zealous fanatics.
2. The governors and legislatures of certain States tinctured with socialism, especially the western group of States now carried away by the misbranded Non-Partisan movement.
3. The modern bolshevists who are out for anything that promises to foment class hatred, promote chaos, curb production, destroy prosperity and kill private initiative.

4. The men in every State who have the nose of a hunting dog for political jobs, and who see the vision of a great organization feeding at the public treasury.

Thus we find compulsory health insurance with a peculiar assortment of friends. It is at once to be observed that, not the lion and the lamb, but the zealot and the crook lie down together. Not politics only, but socialistic "reforms" as well, make strange bedmates.

5. There is a fifth group, the women of New York State, affiliated under such title as the League of Women Voters. They have conducted a very active propaganda and recently reported to the Governor (now printed in the form of a 24-page brochure) bitterly attacking the organizations opposed to compulsory health insurance, namely, the Merchants' and Manufacturers' Association of New York, the League for Americanism, and the Guilds of Dentists, Physicians and Druggists.

In the early days of the movement it was thought that the medical profession was in favor of it. For a time the medical profession, indeed, was in favor of it. But now we find physicians arrayed strongly among the opposition, and we observe them to be well organized in one or two States where the issue has reached the stage of practical danger. In this State, for instance, you will see medical organizations resisting the movement to the last ditch.

Labor Opposed

The various groups in favor of compulsory health insurance all unite in declaring that it is primarily for the benefit of labor. But the somewhat amusing and certainly very effective answer is that labor itself doesn't want it. It is true that a few scattered units of labor, here and there, have at times been in favor of compulsory health insurance, but the great body of the rank and file, as well as the national officers of authority, are vigorously in opposition. As recently as January 30 of this year, at a meeting here in New York of the National Civic Federation, Samuel Gompers made the following statement:

It has come to me that recently some person has declared that Gompers has been won over to compulsory health insurance. I have already made my answer, which is that I am unalterably opposed to it.

We may be perfectly sure that Mr. Gompers and his associates would definitely align themselves for compulsory health insurance if it were something beneficial to the laboring man. These men are in favor of several movements in behalf of the laborer which capital is

resisting. Surely here is something that labor would want if labor found it desirable. The opposition of Mr. Gompers and other leaders is perhaps the most staggering thing which the proponents of the idea have to face. It also sounds the death-knell of the hopes of those philanthropic doctrinaires who really think they are doing something for the benefit of the human race. They can't effectively push a "benefit" down the throats of union labor when labor itself has its mouth closed and its lips locked.

Nevertheless people who are in favor of a particular panacea always find it difficult to listen to reason. Mr. Gompers in the speech to which we have already referred went on to declare that "no matter how convincing would be the proof that compulsory health insurance is impracticable and impossible, there would still be those who would not change their position in the slightest degree, but who would still want it." In other words, they are not open to conviction. The doctrinaire doesn't want to be convinced and closes his mind against it. The self-seeker doesn't care whether he is convinced or not: he is of the same opinion still for reasons of profit.

Fails in Its Purpose

As a matter of fact, indeed, the only excuse for compulsory health insurance is that it would reduce the total amount of sickness on the one hand, and on the other would give the workman medical attention at a reduced cost. Experience in Europe has abundantly proved that compulsory health insurance does neither. As a committee of the Medical Society of the State of New York pointed out last November:

There is no uncertainty about the evidence that the relative morbidity rate, mortality rate, infant mortality rate and maternal mortality rate, has been much more materially reduced in the United States during the past twenty years than it has been in Germany and Austria, where compulsory health insurance not alone, but the whole scheme, including invalidity and unemployment insurance and old age pensions, have been in force. It can, therefore, be seen that compulsory health insurance, as such, plays a very small part in the reduction of length and severity of illness, and that on the whole it has been of extremely little value, medically, in those countries; while it has been the cause of a profound deterioration in medical service and medical morale. Even in England, where it has been in operation for a comparatively short time, it has proved so defective and ineffective for the purposes for which it was instituted that it is now proposed to inaugurate the plan of State medicine to supplant it.

Compulsory health insurance fails not merely to bring the benefits for which it is urged. It actually results in detriment to the public welfare. It is plainly prejudicial to the public interest, and we sincerely

trust that the more it is studied the more this fact will sink into the consciousness of the nation.

Voluntary Employee Insurance

At bottom, of course, there is some modicum of sense to be found in the movement for compulsory health insurance. Agitations of this sort are not all bosh and moonshine. The difficulty always is to separate the real from the unreal—the wheat from the chaff—the desirable from the undesirable.

Compulsory health insurance, as advocated by its friends, is simply impossible. It would do far more harm than good. But it may be possible to strip the movement of its evils and get down to the kernel of truth residing somewhere in the heart of the situation. It is perhaps undeniable that some means of insurance protection against sickness should be afforded to certain groups of people. How can this be afforded wisely and rationally?

Mr. Dunning has made a survey of the conditions existing in the plants of our members, and his findings are printed in connection with this report. It will be seen that already manufacturers are groping their way in an effort to deal with the employee in a way best calculated to protect both him and the employer. It may be explained also that during the last few years insurance companies have offered manufacturers a type of protection considerably in advance of group insurance in its original form. Originally group insurance covered death losses only, but it is now possible to buy protection which covers sickness as well.

The insurance companies are earnestly engaged in studying the whole problem, but they find it a complicated one. The laws in the different States are very confusing, and it is exceedingly difficult to suit any one form of insurance to differing conditions and requirements. The general aim seems to be to get up some form of group insurance which will cover everything not taken care of under the State compensation laws. Evidently, as appears from Mr. Dunning's survey, some of our own members are already buying insurance of this sort. Ultimately, no doubt, the manufacturer who desires to protect both himself and his people against losses from sickness will find it possible to get just what he wants at a reasonable cost, and when this time comes the solution of the problem will have been realized.

For voluntary insurance is one thing, and compulsory insurance is quite another. Voluntary insurance can be economically handled. It will be subject to the laws of competition. It can be purchased by each manufacturer to suit his own particular requirements, and used by him just as long as he finds it beneficial. Compulsory health insurance, on the other hand, drags a long train of evils behind it. It involves an expensive and inefficient organization. It means incompetent and underpaid medical service. It means cheap drugs. More than anything else it means compulsion—and compulsion is repugnant to the free spirit of America. Compulsory health insurance has never yet, in any country where it has been adopted, worked out to the satisfaction of the impartial student, but voluntary insurance may well be contrived which will meet the situation so far as it ought to be met.

Just how far, however, efforts to establish voluntary health insurance will head off the movement for compulsory health insurance remains to be seen. The latter is being pushed with an astonishing amount of vigor. It is apparently gaining strength year by year. Fortunately, however, the opposition is likewise gaining strength, and it may be safely predicted that the battle will be waged more or less fiercely for a number of years to come. We must all of us be on our guard in order to head off a German-made propaganda which would do infinite harm to America if it ever gained a foothold on our soil.

Employee Insurance Among Members

BY H. A. B. DUNNING

Thirty-two of the fifty-six members of the American Drug Manufacturers' Association answered our questionnaire in reference to their policy relative to the protection of their employees against loss of income through sickness, ill-health, or misfortune.

Twenty-seven members stated that they had no form of insurance for their employees against loss of income through sickness, ill-health or misfortune. Five companies have some sort of protection, either for the employees or among the employees, only one, however, having anything that approximates a mutual relationship. In this instance, one of the plants of the company has group insurance against sickness, ill-health or death, the company paying one-half of the premium for such employees as desire to pay the other half and derive the benefit.

Employee Protective Organizations

The employees of four companies have protected themselves more or less independently of their employers. In one instance, the em-

ployees have a death benefit fund, to which each member, upon joining, pays the sum of one dollar, and subsequently is assessed one dollar upon the occasion of every death within the organization. This is strictly an employees' organization.

The employees of another company have developed a very complete system of insurance, which they call the Mutual Aid Society, and which exists for the benefit of factory workers employed at hourly rates. Any such employee is eligible to membership, and dues are paid according to the amount of benefit desired, the monthly dues being five per cent of the sum received per week in case of sickness. The amount of compensation is governed by the amount of wages earned per week. Any member of the society may insure in the grade designated by his salary, or in any lower grade, but not in any higher. No member who has not belonged to the society for one month may receive any benefit in the case of absence. Should the company continue to pay wages to an employee during his absence, no benefit is paid by the society. Benefits are paid for a period of not more than eight weeks in any consecutive twelve months. In the case of deaths, the sum of fifty dollars is paid by the treasury of the society to the person or family designated as the beneficiary.

In another company, the employees have an organization in which, for a nominal fee paid upon joining, members are protected in the event of illness, for a period not exceeding twenty-six weeks.

In another instance, there exists a Relief Fund, the disbursements of which are controlled by a committee of employees elected by fellow employees. There are no regular dues, but the weekly bonuses paid by the company to those who have not been tardy or absent during the week are turned over by the company to the fund. In cases of illness, the employee may draw upon the Relief Fund for money, which is generally considered as a loan, and is paid back upon his recovery, although in some cases, where this is impossible or would involve undue hardship, the sum is given outright.

Payment of Salaries During Absence

Of those companies which have no plan of insurance for employees, six pay full salaries unconditionally during absence due to illness. The general tendency of the majority, however, is to be governed by the conditions of each individual case, and the feeling seems to be that any hard and fast rule is liable to inflict a certain amount of injustice. Full salaries are paid by five companies to

salaried employees, office workers, heads of departments, etc., but in all except one of these cases, laboratory employees or others working on an hourly basis of payment, receive no pay whatever during absence. Two companies, while not paying full salaries during absence, pay all doctor's bills for the employee who is sick. In another company, each office employee is allowed thirty days' sick leave throughout the year, and receives extra pay for whatever time is not used out of this allowance, there being no pay during the actual time of absence. One company in a State which requires State compensation insurance, pays the difference, in cases of sickness, between the amount allowed by the State, which is two-thirds of the weekly salary, and full pay. Only one company makes no provision at all for absent employees.

Of those companies which do not pay full salary during absence, one pays eighty per cent of the weekly salary, one pays one-half, one makes absolutely no allowance, three pay half or full salary, dependent upon conditions, and eight are governed by circumstances as to what portion of the weekly salary is paid during such absence.

In regard to the length of time during which some sort of pay is given by the companies to absent employees, there was a wide variation. Here again, the individual case governed the course followed by many, and length of employment, value of the employee to the company, and the amount of salary received are determining factors. Fourteen companies replied that they were influenced by these considerations. Two companies continue to pay salaries indefinitely, so long as conditions justify their doing so. Two companies pay no longer than a period of two weeks; two pay no longer than three to four weeks, unless unusual conditions warrant it; the Mutual Aid Society above referred to allows compensation for a period of not more than eight weeks during each consecutive twelve months; the employees of another company are protected by themselves for twenty-six weeks. One company continues to pay salaries for three months, but no longer, while two others pay for a reasonable time. Two companies continue to pay salaries until the recovery of the employee, and only one makes no provision at all.

There was a marked difference of opinion as to how long an employee must have been with a company before he is entitled to pay during absence. Five companies make no requirement of such previous service whatever. Eleven replies state that there is no general rule, although length of service is a determining factor in their course of procedure. There is a requirement of thirty days' membership in the

Mutual Aid Society, and the company whose employees have organized this society requires an office worker to have been employed for six months before any allowance is made for absence. Two firms require employees to be with them for three months before paying salaries; three firms have a requirement of one year's service. Two years' service is required by another company, while five years or more are required by still another, although exceptions to this unusually strict rule are made.

In conclusion, five companies suggested that they would be glad to receive any assistance possible from the Secretary to enable them to work out the problem of employees' insurance, to which they have been giving considerable thought. One company stated that in its opinion any general policy to govern such instances would be unfair, as the circumstances of nearly every employee's absence are different, and that some injustice would probably follow an attempt to make all cases conform to the same rule. Another company suggested some form of insurance to which both the employees and the company would contribute, thus dividing the responsibility and increasing the feeling of mutuality between employer and employee. Group insurance covering death but not sickness was the suggestion of another company, as the payment of salaries during the period of absence takes care of the employee without developing the paternalistic attitude.

Discussion on the Report of the Committee

MR. HARDIN: I consider this matter of compulsory health insurance one of the most important and vital questions we have had confronting us for years. It has been my privilege to observe the operations of this legislation in the State of New York since its inception. This movement has been organized and put through by an Association known as the American Association for Labor Legislation, which seems to be imbued with the idea that working people, in fact that all the people, want somebody to do something for them, or rather to them, continuously; when, in fact, people had rather be left alone to do things for themselves.

Types of Bills

It has been interesting to note the different types of bills introduced from time to time. The idea is simply to get it started in some form or another. The first year the bill was introduced, in 1917, it provided that all employed persons earning \$1,200 a year or less would

come under the scope of it. The next year it was provided that all employees and the dependent members of their families should come under it. The next year it was introduced the same way. This year they have trimmed it down to take in those who come under the scope of Workmen's Compensation only; they are free to say, however, that the object is to start with this minimum and then, as it proves successful, to gradually extend it. The object is, without question, to extend it over the entire body of employed persons which will cover about 90% of the people of the state.

It has been my privilege to attend every hearing that has been had on these bills. To show you that, in the state of New York, it is a political propaganda as well as a socialistic measure, I will state that the first year it was introduced it was opposed by the so-called leaders of organized labor in the state for the reason that they saw nothing in it for them. Why? Because the bill provided that a new Commission should be appointed, known as the State Health Insurance Commission. So the leaders of organized labor in the state saw nothing in it for them, and they said, "This means slavery to the workingman and we will fight it and we will die in the ditch before we will submit to it."

Labor and Social Insurance

Well, of course the wily proponents of this measure saw that if they were going to legislate for labor, they must have labor with them, at least the leaders, so the next year they changed the bill and provided that the whole gigantic proposition, which then took in 90% of the people of the state should be administered wholly and solely by the State Industrial Commission, in which all the offices are held by various labor leaders. Well, then, of course, these so-called labor leaders saw a great light, there would be jobs galore, they saw at once that the State Industrial Commission would be greater than all the rest of the departments of the state. Then immediately they had to have compulsory health insurance or perish. At the hearing in Albany before the Judiciary Committee of the Senate in March, 1918, the President of the State Federation of Labor said, "We want this measure and we will fight till we get it." The year before they said that they would fight if they did get it. That is the movement so far as the so-called leaders of labor in New York are concerned.

The real leaders of labor, such as Gompers and Stone, are opposed to it; they see that this is a plan to tie up the working people just

the same as they tied them up in Germany, and that was the object of it there.

The Davenport Bill

The present standing of the bill is this: it has been introduced into the Senate by Senator Davenport, who says this is one of the means we will have to ward off Bolshevism. To me that seems foolish. A hearing was held on it on April 7 in Albany before the Committee on Labor and Industry. At this hearing there appeared very strong opposition to the measure and the opponents of the bill had far the best of the argument. I have assurance from the members of the Committee held that it will not get very far. I have the assurance of Speaker Sweet, of the Assembly, and also the assurance of Senator Sage, of Albany, Chairman of the Finance Committee, who is vitally opposed to this measure, as he says it is paternalism of the worst class.

Mr. Woodruff referred yesterday to educational advertising. I do not think this Association could spend its money to better advantage than by spreading propaganda against this legislation. I believe it vital not only to the interests of the whole people at large but our individual interests as business men. (Applause.)

National Scope of Social Insurance

DR. O'REILLY: This movement for compulsory health insurance and the powers behind it constitute a national calamity. The national character of compulsory health insurance legislation is evidenced by the fact that in many of our states this legislation is being introduced continually. I am in correspondence with a number of the states of the Union where it is pending. Its proponents come before us and say that there are compulsory health insurance plans being proposed in 15 states; and I have always said in reply, "It would be much more to your purpose if you could say that it has been passed in one state."

Now I am interested for four reasons, and I do want the medical men and those who are associated with them to get away from the idea of doing the shimmy as soon as some one says that he is an obstructionist. A little moral courage is what we need, the moral courage to come before the public and say, "Yes, we are against this from selfish motives, precisely as the humblest laborer is and should be selfish in the protection of his earning capacity for his needs today and for the day when that capacity will wane." We are interested and jealous of the sacred traditions of our profession. We are

solicitous for the welfare of the people whom we love and serve, and we are fearsome for the welfare of those who have come to rely upon us when disease enters and death waits without, and on these four counts we go to the public and we have gone there with our own money and without any \$100,000.00 or \$200,000.00 slush fund that has been spoken of in the press.

Fallacy of Social Insurance Figures

You cannot buy, for \$2.42, the health service and supplies for nine days for a workman in the State of New York when the U. S. Bureau of Labor Statistics says it costs \$26.00. They talk to our people of 48 cents a week, 24 cents from the employer and 24 from the employee, and they say that the cost would be distributed in increased efficiency and good will. It will not. The employer must add it to his overhead unless he is untrue to his stockholders; the employee cannot add it to anything but his profit and loss account, so, in the end, he is going to pay two 24 cents, assuming he could buy it for that, and that 48 cents represents three bottles of milk, two heads of cabbage, two-thirds of a pound of butter and nearly a pound of steak, and when you say that to his wife, you are talking in terms she understands, and she wants to know what she is going to get out of that and then we tell her she is going to get, for the nine days her average husband is sick, (laughter),—I am using that word advisedly—all the doctor consultants, specialists, sanitarium, laboratory and dispensary service that he may need, all the specialists and doctor supplies that she herself may need if she expects a baby; in other words, for 11 days you have got to split up \$2.42 in order to provide all these things which the U. S. Bureau of Labor Statistics finds cost \$26.00.

Social Insurance an Enormous Tax Burden

This week the governor of the State of New York applied the pruning knife to \$850,000.00 worth of appropriations in order to reduce a state budget to about \$78,000,000.00, and then he commends compulsory health insurance, which is going to add an annual deficit of \$90,000,000.00 to the obligations of the State of New York. He must get that \$90,000,000.00 or furnish the men with a decreased quantity and quality of health service and supplies, and he must get it in one of two ways, from the pockets of the taxpayers of New York under section 11, article 2 of the Davenport Bill as a deficit, or from the pockets of the workmen as increased premium.

Dr. Frothingham of Detroit has every bit of detail I have, and over in New Jersey you will find Dr. Dickinson loaded for bear. They are developing this guild idea; they are going to the people with facts, not fancies, and it is only in that way that we can come together, because if I must curtail my prescriptions, if I must use something that a medical officer in charge of a fund says I must use to cure my patients, you are the one to suffer.

If you have an article that you sell for a dollar—in some way or other, you have got to be prepared to sell it for 13 cents. If you can do it, boost compulsory health insurance; if you cannot do it, knock compulsory health insurance and knock it in every way you can. And please get in touch with your doctors, and if they are not alive, build a fire under them and make them wake up. By reason of their education, they are the best qualified teachers in society. And by reason of the intimacy and sanctity of their relations to their patients, they are the most forceful teachers of society, and they make the voters listen. And when the voters talk, the legislators listen. That is the solution of the whole problem.

The American Association for Labor Legislation

The American Association for Labor Legislation is an association that does not represent Americanism and does not represent labor; it is an association which they are pleased to say has a dues paying membership. They were forced to acknowledge, however, that the Sage Foundation paid a very large part of the dues.

"If you tell me your company I will tell you what you are." If you run down the list of officers of the Association for Labor Legislation, you will find some names that are very familiar, if you have been reading anything about the Rand School in New York City, or if you read anything about the publications which are characterized as parlor Bolshevik.

And when you realize that this association said last year that the Davenport-Donohue bill was the best bill that could be produced and that they presented a bill this year which differs only in minor detail from last year's bill, which confirms the statement they made last year, you will realize, as I do, that they prepared and submitted to the New Jersey Legislature a bill which contains all of the bad points that the old New York bills formerly contained, and then some.

A MEMBER: And we killed it.

Social Insurance Companion Bills

DR. O'REILLY: I am delighted to hear that, but you have not killed its side partner. You must understand that a tuberculosis germ never goes alone, it always has a companion called the pus germ, and New Jersey has a chiropractic bill.

We have four pests in New York, compulsory health insurance, the medical practice act, that will say to me, "Naughty, naughty Dr. O'Reilly, we cannot permit you to re-register under the medical practice act because you refused to make operative the compulsory health insurance act." Senator Black made that threat. And where I have been speaking in this state, the American Association for Labor Legislation representatives have said, "If you don't take compulsory health insurance, you will have to take state medicine," then along comes the Sage bill, introduced in the Legislature of the State of New York this year, making the State of New York practice medicine.

And if any of you gentlemen should have a dream tonight because you looked not wisely but too well on lobster, and in the course of that dream it occurred to you that by making a crescentic motion with your right forefinger under the ear of a patient you could cure ingrowing toe nails and your dream inspired you to name your cult the "Offty Goofties," you could practice it in New York if the Drugless Therapy Bill, legalizing magnetic healing and suggestive therapy should pass.

And there are four bills in the State of New York that are going to be duplicated in the State of New Jersey and in the State of Michigan, and they will appear in one state after another.

I am grateful to you gentlemen for an opportunity to talk to you. I want you to try and supplement in your states the work we have got to do here. It is not a fight for ourselves at all; it is a fight for the ordinary man in the street so that we can practice decent medicine, and we can't do that if they won't let us practice common decency, if they won't let us use decent preparations that we make, but make us take something else. Then we are prepared to quit, as Dr. Pryor said before the committee, and when we do quit, it will be the best men in medicine who quit, and God help the man in the street when he is at the mercy of the other fellow. Do you realize that in New York State it is possible for a medicine and surgery to be practiced that does a hernia operation on a man at eleven o'clock in the morning, and at half past one o'clock sends him home on the hoof.

EMPLOYMENT PROBLEMS

**As Discussed at the Ninth Annual Meeting of
the American Drug Manufacturers' Association**

Character Analysis

BY DR. KATHERINE H. BLACKFORD

The manufacturer's path is not one of roses today. After many years spent in studying problems of labor and employment, I feel that I know very little about them. Anyone who would offer ready-made solutions for the labor problem would be careless of his reputation, to say the least. So I shall stick close to my own specialty today and give you facts, not theories. I shall do that for two reasons; one is because I can best do that, being a practical worker, and secondly, because I would be a poor character analyst indeed if I did not size up my audience and know that you are men who want facts and not fancies.

Now you are all character analysts whether you know it or not. You must be. Anyone, in order to succeed in life, must be to a pretty fair degree, a character analyst. Why? Because we are constantly dealing with people in every relation of life.

Instinctive Character Analysis

We manufacture for what? For people; whether it is clothes, or automobiles or transportation facilities or drugs; everything we do, we do for people, and if we would be successful, we must do at least a large percentage of things in a way so that we please and influence people.

Now, from the moment you opened your eyes in the world, you began to study people, either consciously or unconsciously. Probably this is what happened to you, as you matured and developed and grew and met different people, you began to classify them according to your experiences with them. When you had pleasant experiences with people, you labeled them, so as to speak, "Likeable." When you had unhappy experiences, you created a different classification. You remembered the faces of those who were unkind to you. You associated such faces with a type of personality you wished to avoid. So, as you have gone on through life, you have classified on the right and on the left, as it were, the people whom you enjoyed and could trust and the people whom you found undesirable. Some of you, no doubt, are accurate analysts, because you have been observant, have thought about your experiences, and have related your experiences to people and personalities in such a way that at once when you see a person,

you can pretty well decide what he is. Others of you are less practical, you are not so observant, you do not notice the little things, you do not relate them to the personality, and so you are all the time being disappointed in others and deceived in others. That is everybody's experience.

Differences Basis of Character Analysis

Character analysis is not a science in a mathematical sense or even in a chemical sense; we cannot put a man on the scale and weigh him and determine that he has so many pounds of industry or so many milograms of good sense. (Laughter.) Nor can we apply the method of the chemist and use the litmus paper and get his psychological reaction in a demonstrable way. We cannot do those things and probably never shall be able to do them, but that is no cause for discouragement.

We can classify people, we can pre-determine, with a degree of accuracy—I will put it that way—what the individual is, what will appeal to him, what kind of work he is best fitted by natural aptitude to do, and how to influence him, how to manage him, how to get his co-operation.

As you know, people are pretty much alike; there are certain ways in which we are all alike. All normal human beings have the same number of bones and muscles, and parts and organs; they have the same arrangement of features—we have two eyes and two ears and two hands and a nose and mouth. Mentally we have certain likenesses, too; we think and we reason and we imagine; the psychologists tell us, in much the same way, though in not the same degree. We are very largely alike emotionally; we all feel in much the same way. We respond to the beautiful, we respond to the patriotic, we love and we are loyal and we are courageous. If it were not for our likenesses, we could not understand one another at all. It would be useless for you to gather here and discuss the problems that you are discussing in this meeting, because you would have no common ground on which to stand. It would be useless for me to come here and talk to you, because you would not be in sympathetic touch with my thought nor I with yours; so it is fortunate that we are alike in the great fundamentals.

However, we are not exactly alike. If we were, our problems would be very slight indeed, because we would all understand one another perfectly. Our troubles arise from our differences, not from

our likenesses. Yet it is well also that we differ. You would not feel at all complimented if I would wave my hand and say, "You are all alike." Each one has his individuality. It is that individuality which causes an individual to like to be called by name, to like to have his differences recognized, that causes him to feel wounded in spirit if he is given a number instead of a name or ground through some school that places everyone on the same level.

The Nine Variables

Now, at first glance, you may say, "the differences in people are so many that I get a headache when I even think about classifying them." But the differences are not so many. They can be classified and classified in such a way that they may be easily recognized. In fact, everything about an individual's physical appearance and quality, as far as the manner in which he differs from other individuals, can be classified under nine headings. These nine variables, as we call them, are really the alphabet of character analysis. They enable you to understand how an individual differs from you.

The first variable in physical appearance is color. Color tells us a great deal about an individual. I am coming back to that.

The second is form of features.

The third is size. People differ in size from the dwarf to the giant, and all the grades between and size is particularly important in industry. Certain kinds of work a small person can do best; other kinds of work a large person only can perform. You know that already.

Body Structure Fourth Variable

The fourth way in which people differ is the structure of body. People are built on different plans. One man is tall and bony and angular and long legged; he is built for covering distances and for the open. Another man is rather small and delicate, with large head and small hands and small feet and a delicate body, delicately moulded. His asset lies in his brain and his nervous system; he can do excellent mental work, perhaps, but he is not fitted to do heavy physical work. Another man is modeled on the circle. He has a round head and round face and round body, big in the middle and tapering both ways. (Laughter.) Shall I tell you what he likes without telling too much? Well, you will seldom find him in athletic contests. (Laughter.) You will seldom find him running footraces. You will seldom find him doing physical drudgery of any kind, but he likes to sit in his judicial

chair or in his executive chair and map out the work for a thousand or ten thousand other men, although he won't want to do the physical work of one. The structure or body build therefore is important in industry.

Texture the Fifth Variable

People also differ in texture of organization, which is the fifth variable. One person has coarse hair, course features, large joints and coarse textured skin. He does not mind handling crude, rough materials; he rather enjoys it, and has oftentimes great vigor, and personality. He likes to put things through without paying too much attention to how they go through. Another person has fine hair and delicately chiseled features, sensitively and highly organized in every way. What does he like? Well he likes quality instead of quantity; he wants everything beautiful and finished and perfect. If he is a workman, he likes to finish his work well; if he is a producer or manufacturer, he likes to manufacture high grade, fine products; he likes to finish, he is a quality man; the other man is a quantity man; and texture of organization might almost be called the great classifier in human nature. Put a coarse textured person in a fine textured job and he is unhappy, he is out of place; and in the same way, put a fine textured man in a coarse textured job and he is unhappy.

Consistency the Sixth Variable

The sixth variable is consistency. Some people have hard hands, others firm, elastic hands, still others, soft hands. Hard hands indicate driving, crushing energy and great tenacity without much sympathy. Elastic hands indicate normal energy, adaptability and sympathy, while soft hands indicate love of ease and comfort and great impressionability.

Proportion the Seventh Variable

Seventh, people differ in proportion. One man has a large head and a small body; another man has large hands and feet, a large body and a small head. One man has a long nose and a short chin; another has a short nose and a long chin. There is every kind of proportion in features. You know, in your manufacture of drugs, that if you change the proportions of a compound ever so little, you get quite a different effect from it, don't you? It is a different product. Now it is the same way with human beings; change your proportion of ingredients and you have a marked difference in character. This is especially interesting in industry. Proportion applies to hands. There is a type

of hand that enables a man to do skillful manual work. If you will educate yourselves a little to study hands, you will know when a hand can express itself in skillful work. Another hand may accompany intelligent analytical ability but the hand itself is useless, because it cannot express anything, it is clumsy. Large noses, convex in form, indicate energy, as I shall probably tell you a little later. A receding chin indicates a lack of endurance. Now there are some kinds of work requiring quick action, energy rapidly expended in spirits. The type I have just indicated does that sort of work very well. There are other kinds of work which require slow, patient, rythmical expenditure of energy. It takes an entirely different kind of individual to be happy in such work.

Expression the Eighth Variable

Now the eighth way in which people differ is in the matter of expression, and under expression we classify a great many things. I am using the term expression in its broad sense—expression of the eyes and the face generally, the voice, the talk, the posture of the body, the gesture—why even the way a man smokes his cigar is most eloquent of his character. Have you ever been in the office of a man and seen him take out a fresh cigar and light it and blow a few puffs and lay his cigar down and forget about it. It goes out, and pretty soon he reaches over, takes another, lights it, partly smokes it, leaves it somewhere and forgets about it, and then takes another and so on? Another man will take the cigar, possibly if you offer one, light it with deliberation, smoke it until it gets too short and then impale the stub on a tooth pick or penknife and smoke it until he almost burns himself. (Laughter.) The first man is extravagant as well as thoughtless; the second man is conservative and economical—I might even use a closer term than that. (Laughter.) And so, under expression we classify a great many things. You can stand on a street corner and, applying the principles of character analysis, tell a great deal about the people who go down on the opposite side of the street if they do not go in too big crowds. The very way they walk shows whether they have purpose and direction, whether they are energetic, careful, careless or crooks.

Condition of Body and Dress Ninth Variable

The ninth and last way in which people differ is that in the condition of the body, the condition of dress. The condition of a man's body shows what his habits are. Perhaps you look at an applicant's

fingernails or the condition of his linen or the kind of clothes he has on, in order to tell you whether or not he or she is desirable. Why? Well, clothes are in a sense, an expression of personality just as everything else about the individual is an expression of his character. So you have learned that the person who is careless and slovenly in his dress or who does not think enough of his body to keep himself clean and well groomed, is in all probability, a poor asset. And you are right. These are broad generalities about the condition of body and dress. We can carry this test several steps further. As you all know, there are many observable signs of disease, both active and latent. By observing people closely, we can tell a great deal about whether or not a man is a desirable asset from the physical standpoint without a careful physical examination. In fact, in some places where our employment department has a medical department in connection, it is remarkable how often the trained employment manager will be able to exclude those who are not physically fit, so that the physician's diagnosis simply confirms what the employment manager has observed for himself.

Everything About Individual Important

I go back to the subject of color. I purposely left it to the last, because most always my audiences think that I rate the question of color in a more important way than the other variables. I do not, however, because everything about the individual is important. Everything about the individual will tell you something worth knowing if you know how to observe it and how to interpret it. I wish I had time to give you the scientific basis of character analysis, because I assure you that in anthropology and biology and ethnology and the rest of the human ologies it has a fundamental basis and a sound scientific basis. When I studied medicine so many years ago that I would not dare tell you how many, I was interested more in the human side of medicine, in the structure of the individual, than I was in the therapy. That is not a good confession to make to you. I am doing perhaps more good for the drug manufacturers in the line I am in today than if I had remained a physician and prescribed drugs, but the limit I have on time makes it impossible for me to give you more than a few suggestions along that line.

Climate Influences Pigmentation

As you know, the color of the complexion was considered of such great importance a few years ago that we divided the races of the

world according to whether they were white, or black or yellow or brown, etc. A few years ago, about twenty, I think, to be accurate, it was discovered that Nature provided pigmentation in hair, skin, and eyes of both men and animals in order to protect the delicate nerves and organs from the actinic rays of the sun which, as you know, destroy normal protoplasm. Now pigmentation in hair, skin and eyes gives the individual his color. It has also been observed and proven, I think, beyond a question of doubt that people who live in countries where there is a great deal of sunlight are much more heavily pigmented than those who live in clouded or damp or rainy countries.

Differences Between Dark and Light Races

We need only to study the characteristics of the dark races and the fair races a little to know that they are opposite. The blonde races have always been the conquering races; they have been the pioneers; they have been the people who have pushed out into the forefront of civilization, who have conquered Nature, who have organized great industries and who have ruled the darker races. And so, wherever we find white people, we find that they manifest aggressive energy, a keen creative intellect, a great desire to rule and conquer. They are commercial, they are mercantile, they are organizing, they are captains of industry, they are rulers.

The dark races have been content to sit down in a warm climate and think things out, and philosophize and expend their energy more in impractical ways than practical ways. They are not, relatively speaking, so energetic; they are more thoughtful; they are not so speculative and pioneering; they are conservative and careful. Why? Because the conditions of their environment did not call for the same amount of pioneering and hardship, physical and mental, that the blonde in his dark, harsh climate had to develop. Go to the country of any of the dark races and you will see fine, intricate and beautiful handiwork. You will see the Japanese, the Chinese and the Indians spend a lifetime, oftentimes, on the development of one piece, in detail work that took infinite care and patience. Blondes don't do that. They advertise and sell this one piece of work that some brunette person has spent his lifetime on and got a few rupees for. The blonde brings it over here to New York and sells it to you for \$25,000. (Laughter.)

Blonde and Brunette Differences

Let us bring that principle right down to our own experience, and you can test this for yourselves. The best part of character analysis

is that you can test it for yourself. Now remember that the brunette likes to manufacture, he likes to produce, he likes to build up a system, he likes to build business; he enjoys a fixed method, he likes to systematize things, he likes to standardize things; he likes to get his system running well and then operate it and maintain it and perfect it. The blonde on the other hand likes to create and invent and commercialize and advertise and sell. The brunette likes detail, seldom neglects it. The blonde, generally speaking, does not like detail; he likes to delegate that to others.

Now let us see how that checks up here. I assume that most of you are drug manufacturers; you are in manufacturing lines; there is hardly a distinct blonde in the audience. A great many of you have dark hair and blue eyes or gray eyes. Several have very dark hair and dark eyes, brown eyes. Take any audience of salesmen, particularly specialty salesmen, and you will find exactly the reverse. You will find many extreme blondes and nearly all of them quite blonde, with perhaps a sprinkling of half a dozen brunettes.

Now how is that applicable in employment? Mind you, you cannot select jobs for individuals on coloring alone, but coloring is one of the important points to know, and if you study your organization and it is a successful one, you will find this to be true, you will have a pretty fair balance of blondes and brunettes in it. If an organization is too brunette, it becomes too conservative, it is too slow, it is too imitative, it does not get out of its rut. If an organization is too blonde, it is too experimental, it wants to upset everything and change it all over and try new methods and get a grand effect without taking care of the detail. Thus, in the successful organization you will find a pretty good balance. Blondes will predominate in the creative jobs; brunettes in the careful, systematizing jobs.

Now another thing; blondes are good business getters, but they do not hold business so well as brunettes. I know—nobody has told me, but I know—that some of you fellows have the same customers you have had for the last forty years and you will always have them until you die and somebody fills your shoes. They will always be your customers. Why? Because you have the qualities that will cause you to hold people after once you get acquainted.

Now we must have both elements in the right combination, in the right places, and having both elements in the right proportions, we get excellent results.

Convex Versus Concave Facial Forms

Now the second variable I mentioned is forms. Some faces are convex in profile. They have large, prominent nose, brows prominent, high sloping forehead, receding mouth, receding chin. Such a convex profile indicates a disposition to express energy rapidly; it is the positive principle in form. If you want to build anything for resistance, you build it in the convex form., don't you? And if I want to drive my point home to you, I double up my fist and present the convex side of it to you. It is intuitive, it is natural; that is the positive principle in Nature. So people who have convex faces have positive ideas; they are observant; they are energetic; if their eyes are also prominent, they have quick speech and are sometimes more direct than diplomatic. These people are positive in what they know and quick not only in observation and in speech but quick in action. If you want someone in a position where it requires quick expenditure of energy, the convex form is the type to look for.

Now faces are also modeled on the opposite shape, concave. You know the concave principle would be represented by the inside of my hand. Now some faces have the forehead prominent at the top, flattened at the eyebrows, the nose gently swaybacked and the chin prominent at the point; the whole face is modeled on the line of the inside of my hand. That is the negative, receptive principle in Nature. If you were about to offer me some gift, I would not present the knuckles of my fist to you to receive it, I would present my open hand, and I might present both hands. (Laughter.)

People who have the concave form of features are receptive, they are quiet in manner, usually negative in expression. They are negative in the expression of energy; they are slow and they are subjective. If you want someone to do patient, plodding work, or grow tired of it, select the concave type or the more common type which is modeled on the plane principle, the plane representing the balance between the two, showing moderate quickness and moderate slowness, in other words, balance.

Balanced Individuals

I observe that most of the faces here are modeled on the plane—I spell it p-l-a-n-e (laughter). They are neither extremely convex or extremely concave. Now let us follow that application right out again. The majority of you are men of medium color, showing balance between blonde and brunette qualities; therefore you have had enough imagination and enough organizing ability to organize an industry; you have

had enough of the brunette element to organize that industry in a careful, business-building manner. The brunette is conservative and careful; most of you are careful, and certainly, if care is required in any line, it is in drug manufacture. Most of you have well balanced faces, a good balance between the forehead, nose and chin, showing ability to control yourselves and therefore control others. In other words, the principles of character analysis are demonstrated right here in my audience this morning in a way that is remarkable to me. I wish you could see them with my eyes.

Three Essentials in Employment

Now we may have any combination of differences that I have outlined, and these differences are the alphabet of character and each has a scientific basis. If you learn the alphabet of character, learn how to combine these variables, how to interpret them in their combinations, you can look at an individual, study him by the observational method and pre-determine whether he is a desirable asset for any given job, or an undesirable asset. I cannot teach you the whole science of character analysis, I only hope to show you the possibilities.

Perhaps I can give you some suggestions that you can find profitable and valuable to you, each in his own line of work. In the first place, in order to employ intelligently, these are three things you must know. You must know, first, your individual, what he is good for what his type is, where he belongs; and you may know that by character analysis. There really is not any excuse, gentlemen, for being ignorant about this.

The second thing you must know is the job. Every job, however humble, requires certain kinds of ability, and every job has its specific requirements and every job is worthy of study. It might be good mental exercise for you gentlemen to study your own jobs. (Laughter.) If you are the President of your corporation, just sit down for half an hour or such a matter—you may spend a longer time after you get started, but just sit down and say, "What does my job call for? What ought I to do?" And after having determined that, then ask yourself if you are really functioning. (Applause.) One man has been at it. (Laughter.) I am sorry the rest of you have not tried it yet, but you will. (Laughter.) Now every job should be studied and its physical, intellectual and emotional requirements should be determined.

Emotional Requirements

Right there I just must digress a minute to tell you something that maybe you have not discovered; more people fail in life because of emotional deficiencies than for any other one reason. You all have plenty of intellect, and most people have. Most people have good enough health, talking about the average. But I want to say to you that scrambled emotions are the most potent cause of failure in life. Just yesterday a young man came into my office. He is occupying a position of the greater responsibility. He is as capable intellectually. But what state of mind do you suppose I found him in? Why, one of his superiors had done something that seemed to him to be in the nature of a serious criticism of him, and that young fellow was worse than any of us women would be if we had been jilted or had been deserted by our husbands. He was all cut up, so wounded and so heartbroken because somebody criticised him, that he didn't know what to do. So you must know what a job requires emotionally as well as intellectually and physically.

Environment an Employment Factor

A third thing you must know is the environment of the worker. Again and again we have had such experiences as this; a man makes a record in one concern, an excellent record, and some other concern gets its eye on him. The manager says, "Oh, there's the fellow we want, he is just the man, look at what he did over in the John Jones Company." So, by roundabout methods, it just happens that he gets into this company. They have high hopes in the beginning. Everything is going to be fine. But in a little while things don't come along as expected. After awhile, his new employers are forced to a realization of the fact that that man is a failure. Why? Different environment, different sets of personalities. Take a group of personalities and mix them in industry, and what do you get? You get a definite psychological compound, just as if you take different chemicals and mix them; you get a definite chemical compound. Sometimes, if you are not careful of the chemicals you mix, you get explosions, don't you? It is the same with personalities. (Laughter.)

The Employment Manager

So that whoever does the employing in a concern must know those three things, must know men, must know jobs, must know work and must know what personalities will harmonize, must know how they will fit and what your results will be. Now gentlemen, I hope that I have

made it clear to you that the caliber of the employment manager should be large. You will forgive me if I seem to overestimate it, but I tell you frankly, the labor problem, the employment problems in your concern today are of just as much importance as your own problems and should be handled by an individual who has very little, if any, less capacity than you yourself have.

Importance of Employment Department

Now in order for employment to function as it should, you must have an organization, you must have a department, you must have the machinery through which an efficient employment department can function, hope that men as progressive as you are have not neglected to organize an employment department in the past few years. I have made investigations, mind you, in hundreds of different concerns, not in a handful, but in hundreds, literally, both during the war period and during the period now which is even worse in some respects. I have seen that wherever there is a well organized and efficiently functioning employment department, labor conditions are much better than where that is not the case. It really seems a pity that the management in some industries does not turn its attention to that fact. Now you want good organization; then careful selection.

Unknown Assets Among Employees

I know you don't need to tell me, because I am in the work every day, I know that we cannot select very much today, and yet we can discriminate. More selection can be exercised even with the shortage of labor today than you people realize; better utilization of what you have got.

I go into a concern, sometimes and take an inventory and find that some of the most important jobs that are just crying for someone can be filled right out of the existing personnel with no trouble. In other words, most of you do not know what you have in the way of human assets. You have probably people in comparatively unimportant positions who might occupy a much better one if you just knew who they were. I could give you hundreds of such examples if I had time.

Labor Turnover

Then there is the matter of proper elimination. You have been studying the labor turnover and you know how serious it is; but I want to say to you frankly that I think we are overworking the term. A certain amount of labor turnover is normal, and if you will keep accurate

records, you will find that your turnover occurs in a few departments. Sometimes, even in a large organization, the bulk of the turnover will be in two or three departments only; the other departments are fairly stable. Now labor turnovers are simply like a headache or a fever. I know that the doctor can prescribe a pill or powder which seems to cure the patient; but it does not. (Laughter.) The intelligent physician to-day does what? He carefully diagnoses his case. First of all he finds out what caused the symptoms, and then he treats the cause, if he is a real physician.

Now when you discover that your labor turnover is running very high in some departments, the thing to do is to find out what the cause is, and sometimes the cause is very different from what you think it is. May I give you one example? Two or three years ago, in a large smelting plant, where we were just installing an employment department, we found that a certain department of the work could not keep people at all. We would send men down in the morning, and sometimes they did not even go to work. Other times they worked an hour or two and came back.

Well, the labor turnover was almost beyond comprehension. So the first thing we did was to study the nature of the work, see if there was anything in the nature of the work itself that ought to cause that. We could not feel that there was. Then we studied the pay in that department and we found that the pay was better in that department than it ran in most departments; so it was not the wages. And the third thing we studied was the personnel of the supervision in that department. And what do you suppose we found? Well, we found that the sub-foreman met these men as they came in for employment, instead of the foreman himself, and that this sub-foreman was a peculiar type of individual. I understood him perfectly well, he was one of these fellows who is always grouching and grumbling and does not really mean it. He really wanted to be pleasant to these new men and did not quite know what to say, so he would look at them and say, "Huh, you're going to work, are you? Well, you won't stay long; I am going to quit myself; this is the rottenest place to work I ever say." This sub-foreman had been with the company a great many years, perhaps twenty years, and that was the line of talk he handed out to the new man. We corrected that and there was no more labor turnover.

Now often you will find one person in a department who will upset the whole department, and that is particularly true in employing women. (Laughter.) It is. (Laughter.) So that sometimes intelligent elimi-

nation is the very best thing that could happen. Don't worry about adding to your labor turnover; in other words, I think today one of the best functions of an employment department is elimination. I tell you we have defection in our ranks; we have got trouble makers and need to keep our eyes wide open today.

Better Supervision Needed

Now the second thing is better supervision. The executive keys the whole department, just as the President keys the whole concern. So true is that that I will almost undertake to describe the organization if you will show me the man at the head. I will tell you what its weaknesses are and what its strength is. Show me the organization with your manager absent, and I will tell you what kind of a man he is; I will almost describe him; and that is true all the way down.

I know that you are going to discuss the question of whether or not labor is as efficient today as it has been. I think of three concerns, all of which I have visited recently, all of which have increased their production very considerably in the past year, one of them with less men than ever before, the other two with the same. One of these is a paper mill. They have increased their average daily production. It has been running nineteen tons a day greater for several months, so it is worth while. They have exactly the same conditions with this exception, they changed from an inefficient superintendent to an efficient superintendent, just a year ago, April 1st. Now the number of people employed is the same, and yet they have increased the output. That simply means the right kind of supervision.

In the employment of women particularly, the person who heads your department is all-important. In other words, you should have your executive particularly fitted for that job. A good executive can get at least fair results from almost any kind of a crew; an exceptionally good executive can get good results and a poor executive can take good workers and spoil them absolutely.

Labor Saving Devices

The next way in which to increase your production and solve your labor problems is by labor saving devices. However much you might wish it otherwise, the world is short of workers; short for two reasons, the rank and file does not want to work, is not interested in it, and we have a shortage of numbers. You are all men of good intellect; many of you are inventive; you have the mental machinery to work with. Standardize; increase your labor saving devices; plan to get

along with just as few people as you possibly can, and try to select those people well and use them where they are best fitted to work. If you will do that, I think you will find that your effort has been worth while. Most of all, I hope you will study character analysis and use it in a bigger, broader way. Go to the roots of the trouble and let us begin to select presidents. (Applause.)

Discussion of Employment by Members

THE PRESIDENT: I would like to ask Dr. Blackford, after making a character study of an individual and placing that individual in the position indicated as a result of your diagnosis, you have found it possible to take the man of the receding chin and put him into the position which is indicated for the man of the protruding chin, and, by systematic endeavor or study, make a success of that man in that particular line of duty?

Individual Cannot Be Made Over

DR. BLACKFORD: In other words, can you make the individual over. No. (Applause.) More of humanity's energy has been expended in uselessly trying to make individuals over into something they are not than in any other way. Now don't misunderstand me. We either improve or go backward; we cannot stand still. We can improve people and often we can discover qualities that we did not know they had and we can give them opportunities to bring them out. We have seen the individual's growth so great that it has been amazing to everybody. Human improvement is possible and discovery of latent talent in the individual is possible; otherwise it would be an awful world to live in; but when you try to make people over into something they are not, you are wasting your time, and more often than not you are making them uncomfortable and unhappy.

Now the part of wisdom is to know what the individual is good for—they are all good for something of course, though I must say that it takes more than human wisdom to know what some of them are good for—but find out what they are good for, what they can do; and then try and help them do that. But do not try to make them over into something they are not, or you will be disappointed.

There is a latent ability that can be developed but it shows itself and you can discover it by the observational method.



Factory Committees

MR. NORVELL: I would like to ask the Doctor about factory committees.

DR. BLACKFORD: I do not approve of them. Now there are, today, a number of different methods of giving the employees a voice in the management.

One method which you probably have all read about is organizing them into a house of Representatives, Senate, etc. Now, as one general manager expressed it where that system had been used, he said, "It is a question of management, pure and simple. The organization of the House of Representatives and the Senate is a place to blow off steam; these fellows think they are doing something but really they are not."

Now it depends, I should say, very largely upon the character of your organization, and most of all the character of your management, whether or not the committee system is good. In large organizations, for instance, I will mention the Westinghouse, we found very good results from Committees; the organization is so large, the number of employees is so great, that most problems really have to be handled more or less through committees, and we got good results from the committee system there, but the committees were carefully selected.

Now I believe that if your plant has the right character of people, if they are intelligent enough and high grade enough, that the committee system is often a help, it is often desirable. In other organizations, it is not desirable, you will only get into trouble and get more agitation than help. I do not think that we can use a cut and dried method in every concern.

I must say that the rank and file of labor is neither of the mental caliber to understand problems of management, nor do they care anything about it. What they want is something in their pay envelopes which represents all they can get, and they are not very much interested in what they give in return. (Applause.)

MR. W. A. SAILER: May I ask Dr. Blackford whether she feels that this clipping I have carried for some little time answers, in her own mind, Mr. Norvel's inquiry:

"A committee is a body of men who take a week to do what one good man can do in an hour." (Laughter.) "No man of creative impulse can explain his plans to another. Here is where a great corporation is crippled and inefficiency creeps in. The directors have to be pacified, the stockholders pleased, the market considered, so diplomacy is the big thing; the factory be damned." (Laughter.) "Thackery has described a scene where thirteen men sit around a green baize table with their attorney in a high school stool in a corner and argue for points; in the meantime, the stockholders are trimmed and the workers go their



own sweet way. The heads of the departments are the sons of the members. Greed, graft, pelf, place and power creep in and the plunderbund and the parasite give us 65 per cent efficiency where 95 per cent is demanded. So I repeat, where you find an institution that secures 95 per cent of efficiency out of machinery and men you have an institution where one man power prevails."

Supervisors of Opposite Sex

A MEMBER: I should like to ask the Doctor if she has come to any conclusion as to whether women would rather be supervised or engaged by women or by men? And the reverse in the case of men?

DR. BLACKFORD: I hope I can answer that impartially. I really think that women would rather be supervised by men. I mean by that that a man should be at the head of the department. I do believe that where a large number of women are employed, forewomen are desirable. I believe that in no cases, or at least in very few cases, should all the supervision be done by a man without some woman in a position of matron or forewoman. But generally speaking, if the man is of the right caliber and the right type, if he is fair and just, women like to take their troubles to him, but for the immediate supervision of the work, I think the results are better with women supervisors. Reversing that plan, men do not like to be supervised by women. (Laughter.) You know I never tell a man what he must do, I just coax him until he does it. (Applause and laughter.)

Selecting the Employment Manager

MR. MERRELL: I should like to ask whether you have found in selecting employment agents or managers themselves, that it is necessary to restrict oneself to some fairly definite type?

DR. BLACKFORD: Fortunately, perhaps, there are so many different kinds of industries that we can utilize to advantage a great many different types of employment managers.

I thank you for bringing up that question, because it enables me to say one thing more that you perhaps have not observed; women, in employment, seem to get along well. I have women supervising employment in concerns where practically all the employees are men, and they get on famously as employment department heads.

Now if you are selecting an employment manager for a machinery manufacturing plant where a large percentage of the labor is skilled, I would say that you need a man with at least mechanical appreciation and, if possible, mechanical experience in the trade or engineering, a man in sympathy with mechanics. If you were employing men for a drug manufacturing concern, I have found the professional type of man

or the man who is in sympathy with professional practice really gets a better point of view, and so we can use a great many different types, providing certain fundamentals are the same.

You cannot afford to have anyone in charge of your employment unless he is honest, unless he is ethical, unless he knows human nature, unless he is of such a caliber that he can see both sides, not the employee's side overmuch and not the employer's side overmuch.

Efficiency of Labor

DR. COLEMAN: We would be very happy to apply the Doctor's principles to our employment problems now, but unfortunately the labor market is in such a condition that we are glad to get blondes or brunettes, concaves, convexes or anything else, and even then we cannot produce.

We have a series of questions here, No. 1. Is Your Labor More Efficient Now Than It Was Six Months Ago? From our experience the answer is No. In actual figures, 1919 compared with a six months previous period, showed a decreased efficiency of 14%. I think we came off very well at that. Mr. White, is your labor more efficient now than six months ago?

MR. WHITE: Decidedly not.

DR. LIGHT: I believe our labor is as efficient as it was six months ago or a year ago.

MR. THURSTON MERRELL: I should say ours is distinctly less efficient.

MR. DUNNING: I should say that ours has certainly somewhat improved within the last year.

MR. WINDOLPH: Our experience is that labor is not as efficient now as it was several years ago. We do not find the same vim and verve there was then.

MR. ELLISON: I should say that there is more of a spirit of "don't give a damn," in the atmosphere, but we have selected the hook nosed man for his job and the dish faced man for his, and I believe the efficiency of old employees has materially improved. We have had more trouble with the floaters among the girls, and the service there has probably been a little less efficient. I do not know whether that was because we had a cantonment and 45,000 young, active hustlers in that community or not. But I think the efficiency of our employees as a class has improved, and as the individual has improved, the output and volume has shown the effect.

Efficiency of Old Versus New Employees

THE PRESIDENT: Before you leave this subject, don't you feel there should be a distinction made between employees who might be called old employees, and floaters, in the matter of efficiency? Isn't it one thing to consider the efficiency of an employee of years' standing, and another thing to consider the efficiency of the class who come and go? I would say, as far as our experience goes, that the efficiency of the true and tried employee is as great today as it ever was. I have not been able to observe any great difference there, but when it comes to people who have no interest in the business, who are here today and gone tomorrow, it certainly is true that their efficiency is much less.

DR. COLEMAN: The point is well taken, Mr. Bartlett, but we want to bring out as forcibly as possible the point as to whether or not labor, under the present conditions, has decreased the efficiency of the old workers as well, and we want to know if the conditions we find have existed generally in all plants.

THE PRESIDENT: I think I can answer Dr. Coleman's question. A week or two ago I was in attendance upon a meeting of the State Manufacturers' Association and there were over 2200 members and the consensus of opinion among the large employers of labor was that labor is not as efficient. Of course you have a line of demarkation. You have a greater percentage of floaters today. Manufacturers located in sections where there is great labor competition—large industries to whom compensation cuts no particular figure because it is simply added to the cost of the goods have created a degree of unrest and discontent by their radical wage increases.

These floaters are not simply interested in the amount of money in their weekly pay envelope, as has been said. If you talk with the leaders of organized labor, they will tell you, "It is not money; humanity is what we are seeking." They are groping for a condition which they themselves cannot define. And this spirit of unrest and discontent is just as infectious as typhoid fever. How are you going to offset it? Your floaters infect your old loyal hands, and as a result their productive ability is less; though they are just as sincere as they ever were.

Take for example our plant. Within the past six months we have had more unexplainable accidents in six months than we previously experienced in two years. On a machine which was carefully guarded in all its parts, a fellow who wanted to clear off the pulley got down on his hands and knees on the floor and reached up under-

neath the guard and caught his hand in the belt. I asked him why he did it, and he did not know; he just thought that was an easy way to clean it. His mind was not on his work.

What is it we must do to produce in the minds of these people the idea that the human relationship which should exist between the employer and the worker, still exists? In our plant, we introduced a year ago the group life insurance plan. I was never satisfied with what it accomplished. I was never satisfied that it fulfilled our employees desires. So within the last three months I have had our employment manager question the individuals about to leave. He asks "Why are you going to leave?" "I don't like the job?" "Why?" "Oh, well, I could get more money." "But don't you realize that you are throwing up a life insurance policy of a thousand dollars?" "Yes, but I am not going to die, that doesn't cut any figure, I don't get that money until I die," consequently we have proven to our own satisfaction that group life insurance will not curb the discontent as a single factor, nor is there one single factor which will do so.

The last step which we took, and which at last reports has only been in operation a week, has seemingly cemented a degree of friendship and confidence and eliminated to a marked extent that intangible discontent, that undercurrent which we could not locate, and this particular move was the installation of a pharmacal co-operative store as we called it. We furnish the light, heat and building; we furnish the man to operate the store, do the carting and draying from the depot, handle all the goods and sell them at absolute cost as billed to us wholesale. That has created, for the moment, the most favorable comment of anything that has been done. Now we see the working of the mind of the individual. A man came to me and said, "This other plant down the street has a cafeteria that beats us all to pieces, but this store is something for the family. I might go and eat at the cafeteria, but that would not do my family any good. Here I might save ten or fifteen cents on the grocery bill for my family. This beats life insurance, it beats anything you can do for us."

Gentlemen, there is hope in the character study which the doctor has referred to, conducted to the nth degree by the competent employment manager—and I say to you that a competent employment manager who is capable of character study, who can place himself in the position of the worker and place himself between the worker and the chief executive and produce a fusing of interests, is the ideal

individual. But I am afraid but few of them have been born as yet, and I am sure that you cannot make them.

If we had sufficient employment managers, we would not have the discontent the Doctor referred to in the case of the foreman. We have one department that confirms all she said; in that one department there is more labor turnover than anywhere else and it is one of our most important departments. We have discovered the cause, but what can we do? We have a highly experienced technical man there and we cannot replace him. The man is grouchy, he is just a chronic invalid and he cannot recover from it. The duty of the executive is to get in touch with that man, but the days are too short. A few years ago, when I could live with that man, he saw through different glasses, if I could only stay at home long enough and keep my grip on him, I think I could manage that man, but I have not found anybody else yet who can convert him. He is straight today, but he gets another ism tomorrow. So I say, through human relationship, if you can define what that human relationship is that is desirable, you have solved all your labor troubles. (Applause.)

Interdepartmental Transfers

DR. COLEMAN: I wanted to ask you, Dr. Blackford; what has been your experience with the so-called interdepartmental transfer, the round peg in the square hole, etc.?

DR. BLACKFORD: An employment department properly organized and run becomes a clearing house for all problems that affect the individual. Now if a person is unhappy in his work or inefficient in it, the employment department should know about it. If the unsatisfactory individual is fitted for something else or will be happier in some other department, oftentimes a transfer can be negotiated in such a way that it reacts to the benefit of all concerned. Now it is not the function of any employment department to look into Tom Smith's department and say, "Here, that fellow will fit well over in John Jones' department; send him over in John Jones' department." If he does that, he gets his department heads all at cross purposes and gets into trouble. He might be indiscreet enough to transfer a person from a poorly paid job into a much better paid job, and would get into endless trouble, but transfers going through the proper channel and properly effected can do a tremendous amount of good and you will get no undesirable conditions arising from them if they are properly made.

DR. COLEMAN: This individual is transferred from one department to another and then is not properly fitted there, and is again transferred to still another department. How many transfers do you advise?

DR. BLACKFORD: It is dependent entirely on the individual. In the first place, it is very poor policy to transfer a person just because he is a malcontent unless there is a real reason for the transfer. Some people will work in every department of the organization, and then be dissatisfied. I should say that the first thing to do was to determine whether or not he should be transferred. Unless he should be, I would make very few transfers of the same individual. Of course Henry Ford operates that thing in a different way; they transfer a man three times and then let him pick his job, and the next thing is he eliminates himself, but continuous transfer is not desirable.

Causes of Reduced Efficiency

DR. COLEMAN: If your labor is showing reduced efficiency, to what do you attribute it—industrial unrest or shortage of labor, skilled and unskilled, or the high labor turnover?

I have a few figures that will serve to answer this question. Our general cost advance for 1919 over 1918 was 24½%; for 1918 over 1917, 96½%; i. e., general cost, overhead and all. Our cost of labor only—(I have taken this from our finishing department record, that being practically the key part of our business)—the increase there is 175%, due to decreased production and increased rate of pay; the increase during the year 1919 over so-called normal times, 1917, say, before we entered the war, while we were in a practically normal condition, our general cost increased 96%. Our labor cost increased 175%, showing that the increase is due almost entirely to the higher wages and to the decrease in production.

MR. STEARNS: Our records show that we are producing per working hour today more dozens than we were six months ago, but this is due, I think, to the efficiency of the executives in planning and taking care of the situation by getting our bonus systems, etc. Our people, however, are not as efficient as they were a year ago.

A MEMBER: And you are paying a lot more for that production, aren't you, Mr. Stearns?

MR. STEARNS: Twelve and a half percent.

DR. COLEMAN: Our labor turnover in 1918 showed an increase of 130% over the preceding year; in 1919 it showed an increase of 148% over 1918.

A MEMBER: Do you mean your labor changes?

DR. COLEMAN: Yes, for example, in the month of March we employed 137 women; we lost 149 women; we employed 105 men; we lost 210. Now what is the situation in other cities? Is this universal, or are we up against something peculiar to Detroit?

Floater and Increased Labor Turnover

MR. SAILER: I think perhaps your figure of labor turnover is a little misleading; there is only a certain portion of the payroll that represents that turnover. Perhaps 50% of the employees in our laboratories are absolutely efficient; they are entirely loyal; the majority of them have been with us anywhere from three years up, and some of them a great many years. That old, loyal labor is just as efficient as ever, and I don't know but what it is a little more efficient because of its extreme loyalty and its desire, seeing us in the predicament we are in, to produce everything it possibly can at this time.

Then I might say the next 20%, which carries it up to 70%, is the more recently employed labor; they come and stay reasonably well. We, like Mr. Stofer, carry group insurance, making it effective after six months' service. That works very nicely with the older employees who all appreciate it, particularly the men. We carry it on up, beginning at \$500 after six months, up to \$2,500 after 10 years. But of the next 20%, after that 50% of old employees, perhaps not over half of them value it. The younger girls do not care a fig about insurance.

Now perhaps half of that second 20% is efficient; then perhaps the second 10% is rather indifferent; then we come down to the last 30%, one half of which we haven't got at all. (Laughter.) We are running from 15% to 20% short all the time. Now that third proportion, the 15% is the floating element that one gentleman just spoke about; that is where your turnover is.

DR. COLEMAN: In giving you a figure to illustrate that point, Mr. Sailer, I said that in our female help we engaged 137 and lost 149. Out of that number we lost 37, or 25% who left within one month. Their general service has been anywhere from one day to 26 days. In other words this illustrates very well the statement that we are suffering from the employment of the floaters. Twenty-five per cent of the people that left had been with us less than a month, 10% had been with us less than two months; 6%, less than three months. However, those percentages are to be discounted very much owing to the fact that many of the employees have been there from twenty to

thirty years; that dilutes these figures because I did not take just the actual individuals who came and went.

MR. SAILER: As to the cause of this turnover, Mr. Danner says he thought it was the desire for pleasure. I have not the least doubt but that has a great deal to do with it, but with us in Baltimore, I think, the difficulty is more largely due to the shortage of labor, they are not there. We are advertising every day in three papers and last Monday morning, which is usually our harvest for applicants, we had just three. We employed two out of the three, and one of the two left at noon. (Laughter.) When asked why she did not want to stay, she said she did not care to work in a place where they did not have a Victrola and a dancing hall. (Laughter.)

MR. COLEMAN: We have a dancing floor, but that does not seem to meet the situation. Dr. Burdick, can you tell us something about your situation?

DR. BURDICK: The turnover is very large with us, and that is particularly the case with women help, and especially the floating type. I believe our figures will be very close to yours. During the year the cost has increased; we cannot get help, and when we get it we cannot keep it. We have the bonus plan; our people have to stay a year to get anything under that plan, and the bonus increases with the years of service. Our older help is well satisfied and efficient; the new help is very inefficient and is changing constantly.



REPORT OF COMMITTEE ON LEGISLATION

**At the Ninth Annual Meeting of the
American Drug Manufacturers Association**

The circumstances under which this report is written make it quite impossible to render it satisfactory to your committee, much less satisfactory to the Association. With no opportunity to confer with his associates the Chairman must assume full responsibility and leave it for the other members to express dissent or make amendment and correction on the floor of the house, so to speak, during the discussion. Leave must therefore be asked to make such revision for the purpose of the proceedings as such discussion may disclose to be necessary.

Very soon after our last annual meeting our esteemed President notified your chairman of his appointment and requested him to name his associates. It seemed wise to him to choose four members who could reach Washington in any emergency with a minimum of expense and a maximum of speed. He therefore drafted Mr. J. C. Roberts, of Sharpe & Dohme; Mr. A. Homer Smith, of H. K. Mulford & Co.; Mr. George C. Pratt, of the National Drug Company, and Mr. Fred J. Windolph, of the Norwich Pharmacal Company. These gentlemen have been very willing and efficient and deserve the thanks of the Association as they certainly have those of the committee's chairman.

New Food and Drug Regulations

Our first call to the national capitol was early in June to attend a hearing respecting new rules and regulations for the enforcement of the Food and Drugs Act. A full report of this hearing was sent to the members of the Association at the time. (G.-18.) The conference was exceedingly interesting; but unless the revised rules and regulations have appeared since your chairman immuned himself in the hills of Los Angeles they have never been published. Comment upon them in this connection therefore seems superfluous.

Mailing of Poisons

We made this visit in Washington the occasion of a call upon the Post Office Department to enlist its co-operation in promoting legislation that will relieve the present unjust situation respecting the exclusion from the mails of medicinal preparations containing poisons in medicinal doses. Probably as the result of this interview the Postmaster General has had introduced in Congress a bill to amend Section 217 of the United States criminal code that, if passed, will enable him to again promulgate the regulation that was so satisfactory to the drug trade and medical profession until it was abrogated by the decision of

the court in the Bruce case. This bill is now in the hands of the Senate committee on postoffices and postroads, and efforts should be made at once to have it reported out and passed.

A preliminary interview was also had with the Narcotic Division of the Internal Revenue Department respecting the amended Harrison Act. The hearing on the revised rules and regulations for the enforcement of the Food and Drugs Act was commented upon and the idea of a similar hearing upon the tentative regulations for the enforcement of the amended Harrison Act suggested and approved. Such a hearing was subsequently held and will be the subject of our next comment.

Before leaving the matter on this first visit of the full committee to Washington remark should be made on the effect of this full committee representation. It undoubtedly impressed all the officials we came in contact with with the importance of our industry and the real dignity of our calling. It certainly inspired confidence and paved the way for greater attention to subsequent individual representation.

Amended Harrison Act Regulations

A few weeks after we were again summoned to Washington to consider tentative regulations and rulings for the enforcement of the amended Harrison Act. These tentative regulations were pending many months and were eventually issued under date of November 24, 1919, as Regulations No. 35. To speak with justifiable frankness they are unnecessarily burdensome to the medical profession, to dentistry and allied professions as well as to pharmacy in all of its branches. Is Medicine and Pharmacy to be discouraged or encouraged? Are doctors and druggists to be treated as criminals or as benefactors of society? If through some combination it was announced that the physicians and the druggists of the city were going to close offices and shops on a certain day for a week or a month, would consternation or rejoicing follow? Is it not inconsistent and unjust that the professions of medicine and pharmacy should be considered as quasi-criminal in character and their members treated as suspects to be constantly watched, restricted and imposed upon in a thousand annoying ways? True now and then a derelict is found; but such is the case in every calling; and if vocations are to be judged by their isolated derelicts then no calling is more vulnerable than that of the cloth. Instance the Baptist minister who murdered the victim of his lust in the east, or the Methodist parson in the middle west who attempted to hide a greed-inspired crime by murdering the evidence, cutting up

the corpse into small pieces and trying to burn them in the box stove of a country church.

The opportunities of the Confessional have been made the occasion of scandal more often unjust than warranted, by far ; but the periodical sensational imputations against doctors and druggists have as little warrant. And yet no one dreams of a law compelling a lady going to confession to be accompanied by a policeman. Why not put Methodist camp meetings under restrictive measures analogous to those under which the druggists are compelled to supply the doctor with absolutely indispensable drugs ; and under which the doctor is compelled to administer them ?

Pharmacy and Medicine are respectively and equally to blame for this situation. Instead of joining forces and with due dignity demanding just recognition and treatment, we hear nothing but criminations and recriminations. To listen to the forensic eloquence delivered at some of our pharmaceutical meetings, one would believe that the whole medical profession was abandoned to sordid greed and sought fortunes by writing prescriptions for habitues. Unjust and oppressive restrictions upon the doctor have been written in some of the these laws at the instance of Pharmacy ; and the converse is true. The druggist wants to curb the dispensing doctor and the doctor desires to put the prescribing druggist out of business.

These disputes are family affairs and should be settled at home—not in the halls of legislation. Before the public the professions of Medicine and Pharmacy should stand shoulder to shoulder as sister professions to which the great public owes more than any other two professions or callings in existence. Oppression of one should be regarded as oppression to the other ; and this should always be remembered : Injustice is injustice, whether its victim be a friend or a foe.

A few concrete examples will demonstrate the pertinency of these remarks. If a dentist desires to buy as few as fifteen or twenty cocaine tablets for dental operations in the original sealed package as carefully put up by the manufacturer, and his local druggist has not registered as a wholesaler, he must send away for them and pay often more than the value of the tablets in transportation charges, for they are not mailable. Here both the local druggist and the dentist are victims of two unjust laws.

But is this situation in the interest of the public ? Let us see. The dentist may not buy fifteen or twenty tablets in the manufacturer's original stamped package from the local druggist—his natural source

of supply for such quantity—but he may buy from the same source one thousand or ten thousand if the druggist will but deliver them in another container than the original stamped one.

It is a crime for a retail druggist to sell the smallest conceivable original stamped package but there is no limit to the quantity he may sell from the original stamped package. It is inconceivable that Congress ever intended the results that have followed its definition of the terms “wholesale dealer” and “retailer dealer” coupled with some of the rulings that have been made thereunder.

Another instance is the ruling that the volume of the content of the package is the basis of the stamp tax rather than the actual narcotic content. Under this ruling we are compelled to pay a stamp tax upon syrup, water, milk, sugar as well as upon harmless drugs which may be in the combination. The more dangerous the form in which the narcotic drug is presented the less the tax. Undiluted an ounce of morphine is taxed but one cent. Diluted it may be taxed several dollars. The greater the dilution and the less harmful the preparation the greater the tax. Does the President and Congress know that under this law, if one sells an ounce of morphine he pays a tax of only one cent; and if the buyer takes that ounce of morphine and add water enough to make a solution each ounce of which contains 1/100 grain of morphine one must pay a tax of \$437.50? Is this a tax on morphine or a tax on water? But this is the effect of the second paragraph of Article 66 of the regulations coupled with Article 142 holding in substance that a solution is not a preparation exempted under Section 6.

The trouble with these inconsistent and unjust laws and regulations is that, while honestly made with the best intentions, they are wrong in principle, and any law wrong in principle is sure to work injustice and oppression.

Another cause of just complaint is the burdensome record keeping and report features of the regulations that require a needless force of clerks in the department, and in the offices of collectors of internal revenue, as well as in the various laboratories, warehouses and stores of the trade throughout the country. This is an economic waste of man and woman power that in view of the lamentable shortage of labor of all kinds, seems almost criminal. The horde of clerks now engaged in useless non-productive detail at Washington, in every government office throughout the land, as well as in the factories and shops of those affected should be released in the interest of the greater and more economical production that the prosperity of the country and

reasonable cost of living demand. May we not fittingly close this arraignment by quoting from the indictments against the English king found in our Declaration of Independence?

"He has erected a multitude of new offices, and has sent hither swarms of officers to harass our people, and eat out their substance."

The Eighteenth Amendment

It may be that before our meeting the Supreme Court will have finally passed upon constitutionality of the Eighteenth Amendment and the act to enforce it. However, the issues recently submitted to that Court may be decided, this much is certain: the Eighteenth Amendment does not undertake to forbid or regulate, or to authorize Congress or any State to forbid or regulate the manufacture or sale of intoxicating liquors for other than beverage purposes; and laws and regulations that make it hazardous to manufacture and sell for purposes which the people of the United States have recognized as lawful are properly subject to arraignment without incurring the displeasure of the pulpit or the danger of losing caste in one's church. Our anxiety to occupy high pedestals in the esteem of the Anti-Saloon League should not lead us to condone offenses on the part of enforcing officers against other provisions of the law of the land which are quite as sacred as the Eighteenth Amendment. We note with satisfaction that the authorities higher up have been loth to approve certain acts of individual enforcing officers that have been applauded by enthusiasts who seem to believe that the end justifies the means. The amendments to the Constitution protecting the people against unreasonable searches and seizures without warrant issued upon probable cause, supported by oath or affirmation, and describing the place to be searched, and the person or things to be seized; protecting the individual against deprivation of life, liberty or property without due process of law; securing to the accused the right to a speedy and public trial by an impartial jury; to be confronted by the witnesses against him; to have compulsory process for obtaining witnesses and the assistance of counsel for defense, and not be required to give excessive bail and not to be subjected to cruel or unusual punishments—these amendments are still in force; and the man who advocates their practical abrogation to expedite the enforcement of the prohibition laws, be he parson or peasant, is neither a consistent Christian nor a patriotic citizen.

Any effort to make a comprehensive report covering the various state laws that have been enacted to enforce the Eighteenth Amendment, as well as any attempt to recite in detail the regulations and

decisions rendered under the Federal act would be as useless as it is difficult. It is too early to compile a work of reference. The whole matter is still in a formative stage. Information has been given from time to time in bulletin form as it became accessible, and such will continue to be given in the future. Thus we will gradually learn, sometimes by precept, sometimes by observation, and, alas, sometimes by experience.

Venereal Disease Literature and the Mails

Your chairman was invited by Chairman Steenerson to attend a hearing before the Committee on Postroads and Postoffices of the Senate on a bill introduced at the instance of the Public Health Service to exclude from the mails all printed or written matter recommending, suggesting or that might lead to the use of any remedy by one for the treatment of any venereal disease or symptoms. The bill was very much broader in scope than the laws of several states forbidding the advertising of treatments for gonorrhoea, syphilis and chancre. If it had become a law it would have embarrassed the proprietors of very many blood remedies, in whose advertising matter no mention is made of any of these diseases, so inclusive was the enumeration of the diseases and symptoms affected by the bill. As for its effect upon the business of the members of this association: any price list mentioning Pil. Gonorrhoea or Anti-syphilitic, for example, would be excluded from the mails. If one of our members, wishing to complement the medical profession, reproduced an article respecting the treatment of chancre from the most scientific medical journal, or indeed, from the Journal of the American Medical Association, and mailed it, he would be violating the law; although his reprints went only to physicians. Indeed, without an amendment which the public Health Service itself recommended, the Journal of the American Medical Association could not be sent through the mails. A full report of your Chairman's representations was made in bulletin form at the time. (G. 37.) The feeling now is that no bill will be reported out of committee. One influential member of the Senate committee remarked in private, in your chairman's hearing, that "we've made too many such laws already, and it is now time we began to repeal some of them."

Guarantees Against Price Declines

Two complaints have been made before and entertained by the Federal Trade Commission against concerns which sold their goods

subject to a rebate on stock in hand in event of subsequent decline in price. Copies of these complaints were secured and the essential parts thereof sent to our members with the comments of your Chairman. (G.-44.) For anything he has learned to the contrary no hearing has been had on either of these complaints. On the other hand, it was intimated that others than those cited would be given an opportunity to be heard as their interests might appear. It must be borne in mind that the particular contracts involved are those which provide for a rebate upon stock previously purchased and on hand at the time of the decline. Some of our members have received orders submitted "subject to rebate for stock in hand in event of any decline in price." These agreements are quite different from those contracts for supplies for a given period, to be shipped from time to time as ordered or mentioned in the contract and to be billed at a stipulated price unless with respect to any shipment the market price was lower, when the latter should prevail. Under such contract the buyer gets no rebate on previous purchases. The merchandise is billed at the current lower rate notwithstanding the mention of a higher rate in the contract.

The view of the chairman of the Committee on Legislation is that contracts for rebate on stock on hand of goods bought before the decline are vicious except in special cases where good reason exists; such as arbitrary reductions in the price of controlled goods. As a rule, however, the promise of a rebate on stock on hand in case of decline in price is bad merchandising and against public policy. It is against public policy in that it amounts to a guaranty against declines and prevents lowering the high cost of living. It is against public policy also because it tends to make the buyer careless and overstock himself which certainly militates against the even distribution of merchandise; promotes the accumulation of stale stocks, and thereby deprives the public of the benefit of fresh supplies frequently purchased. Other reasons might easily be given why this contract is against public policy, if it were necessary or if it were desirable to make this report voluminous.

As between the buyer and the seller the contract is certainly unjust and inequitable. The seller does not control the price. He must take the same risk as the buyer does. He does not ask the buyer to pay him a bonus in the event of an advance, and the buyer would indignantly refuse his request if he did, although the market value of the buyer's stock is increased by the advance.

Again, the manufacturer's interest as well as the dealer's are promoted by the quick return of goods bought for sale. The public gets the benefit in fresh goods; the retailer gets the benefit of quick sales and satisfied customers, while the manufacturer and wholesaler get the benefit of a minimum number of requests for returns, exchanges, extensions of credit, etc., because the goods are still unsold.

Manufacturers and wholesalers have constantly to fight the propensity of short-sighted salesmen to overload their customers and to give salesmen the right to sell goods subject to rebate for stock on hand in case of subsequent decline in price is certainly inconsistent from a business point of view; if not illegal for the reasons set forth in the complaints now pending before the Federal Trade Commission.

State Stamp Tax Laws

It has been necessary during the past year to give some attention to a law enacted in Tennessee to regulate the sale of insecticides and fungicides which includes a provision intended to compel manufacturers to stamp packages of their brands sold in the state. So far as the writer has heard no manufacturer is complying with this law and no effort is being made to enforce it. It is probably unconstitutional as applied to articles sold in interstate commerce. Sec. 10 of Article I of the Constitution of the United States provides in part that "No State shall, without the consent of the Congress, lay any imposts or duties on imports or exports, except what may be absolutely necessary for executing its inspection laws." That the revenue provided by the stamp-tax feature of the Tennessee law would be far in excess of that necessary to enforce the law is too obvious for dispute. If it were not so the law would doubtless be constitutional, although unjust and impractical. It would promote the mail order business to the detriment of dealers in Tennessee, for many manufacturers would supply consumers in interstate commerce, either direct or through dealers near, but outside the state line.

A similar statute threatened in Alabama. The Chairman of your Committee on Legislation effected communication with the representative of that State on the Legislative Committee of the National Wholesale Druggists' Association, and the bill was modified so as to eliminate the stamp-tax features, and really make compliance with the Federal Statute Automatic compliance with the state.

These matters were treated of fully in bulletins issued at the time and no further comment on the subject is deemed necessary in this report. See G-19, G-27, G-28, G-35.

Trademarks in Latin American Countries

The Committee on Legislation regrets its inability to make a satisfactory report respecting the trademark situation in South America. There has been no material change. In the meantime, another alarm has been sounded to the advantage of the patent solicitors if it was not really inspired by them. Your Chairman has never felt that there was cause for much anxiety except, of course, where the nature of the trademark was such as to make the use of a similar mark in good faith likely or probable. The alarmists, however, have pointed out that blackmailers were likely to register popular trademarks, not for the purpose of using the same in commerce, but to prevent the real owner from marketing his product and compelling him to buy the swindler off. It will be remembered that in the Latin American countries, as well as in a few European countries, prior registration is conclusive evidence of ownership rather than mere presumptive. It is the opinion of the Chairman of your Committee on Legislation that this is true only of registrations made in good faith, and that any registration made for the purpose of blackmail, or for any other fraudulent purpose, can be canceled, probably at the expense of the registrant. Your Chairman can call to mind no such wholesale fraudulent registrations happening as have been predicted in the alarming articles, except in Mexico. As long ago as Diaz was in power, one Brown, an Englishman, located in Tampico, to which point he had gone from Oklahoma, registered the trademarks of seventy-two prominent American, French and English owners. Among them were Royal Baking Powder, the Walk-Over Shoes, Pinaud for perfumes, Ethymol for tooth powder, and others equally well known. After vain efforts to interest the United States Department of State in the matter on the ground that an effort was about to be made to swindle the people of Mexico by imposing counterfeits upon them, some of the owners got in direct touch with President Diaz and he ordered all the registrations canceled forthwith. About the same time the name of a prominent automobile was registered in Argentina and its cancellation was secured by proper proceedings. If Americans will live up to the traditions of their country they will not be likely to have such troubles. "Millions for defense, but not one cent for tribute" is as good a policy in business as it is in international politics.

Price Maintenance Legislation

No progress has been made in Price Maintenance Legislation and none is likely to be made in the near future. In the first place, the

idea is unpopular ; in the next place, there are too many specious arguments available to the department stores that are likely to appeal to the average legislator, especially just before a congressional election ; then all measures so far submitted contemplate further activities on the part of the Federal Trade Commission or the creation of a similar bureau, and there is an undercurrent of sentiment against creating new commissions or giving new powers to old ones. What encouragement the Supreme Court has given has been neutralized by the pronouncements of the Federal Trade Commission, and the whole situation may be fitly described as somewhat chaotic. Bulletins issued (G-25 and G-35) have covered in full detail decisions of the Supreme Court, and it remains to be seen which authority is really supreme, or whether conflicting ruling can be reconciled and reasonably differentiated.

Formula Disclosure Legislation

That legislation compelling proprietors of secret formula preparations to disclose their formulæ is not necessarily invalid is now fairly well established, and attention was called to the fact that the New York City Board of Health had amended its famous formula disclosure ordinance to meet the objections to the original ordinance that had been pointed out by the New York State Court of Appeals in Legal and Legislative Report No. 15, issued April 25, 1919. Since then little has been heard of the matter ; but it should be remembered that the proponents of such legislation are ever active, and we should be constantly on the watch to protect our interests. Heretofore this Association has not objected to the main idea of informing the public of the medicinal contents of the remedies it is asked to take ; but rather to features which may readily be overcome by re-drafts of the measures so far introduced. Why should the public not be informed respecting physicians' prescriptions, or the contents of a preparation of the United States Pharmacopoeia or the National Formulary? Reference to the proceedings of former meetings of this Association will disclose that it has always objected to the unjust discriminatory features of the stereotyped measure we have successfully combatted in the legislative halls of several states. The persistency of the interests behind such bills in retaining these objectionable features indicates that the aim is not so much to protect the public as it is to discredit medicinal preparations not mentioned in these particular authorities, regardless of their intrinsic worth.

Uniform Drug Legislation

No progress can be reported in the matter of uniform drug legislation, unless the introduction in Congress of the so-called Calder Bill can be called an advance, as it probably may. This bill was reported in Legal and Legislative Report G-41, and you were informed of the opposition of the American Medical Association in G-43. The chances are that the bill will not be reported out of committee, or, if it is, that the report will be an unfavorable one.

Nevertheless, the measure is a just one and should be adopted, if for no other reason than that it is in the interest of the lower cost of living. It provides that an article that conforms to the Federal standards under the misbranding and adulteration laws shall not be deemed to be misbranded or adulterated by reason of any state law. Manufacturers and wholesalers engaged in interstate commerce are not so much concerned about what the standards shall be as they are that such standards shall be uniform, so that one stock shall suffice.

Of course, the idea of interfering with state legislation is at first repugnant, but it must be remembered that the Calder Bill is within the scope of the interstate commerce clause of the Constitution of the United States, and experience has shown that it is time that Congress should exercise its power to regulate the State in matters of interstate commerce as well as its power to regulate the citizen.

The animus of the American Medical Association is readily understood. Its policy is to annoy and embarrass manufacturing pharmacy as much as possible; therefore, while it is seeking uniform medical legislation, it is bound to defeat uniform pharmaceutical laws.

Compulsory Health Insurance

The Committee on Legislation cannot very well discuss this subject without invading the province of your special committee, whose able report of last year was discussed in Legal and Legislative Report No. G-22. We will, therefore, dismiss the subject with the prediction that we shall have an equally interesting and valuable report at the present meeting.

Public Health Legislation

In Legal and Legislative Report No. 25 attention was directed to a bill introduced by Congressman John McDuffie, of Alabama, to create a Department of Public Health, and discussion of the idea was invited. Subsequent Legal and Legislative Reports covered the views, pro and con, of those of our members who chose to express themselves upon

the subject, all indicating that there is much to be said on both sides, and that the Association is about evenly divided upon the general proposition. We think, however, that any such department or bureau should be safeguarded against the domination of the American Medical Association, or, for that matter, any other medical faction.

Miscellaneous

A continuation of this report in detail would be accepted as an effort to be complete and to embrace all the activities of the Committee on Legislation and its Chairman. Such a report would, under the circumstances referred to at the outset, be quite impossible. We probably have forgotten more than we have remembered and we are depending largely upon memory in hastily indicting these lines. We have in mind that we have sent out many syllabi of recent important decisions affecting the drug trade; that we have touched upon such subjects as the importation of drugs and chemicals under licenses of the War Trade Board; the Cost on Packages legislation which we may have to consider seriously in the near future; the status of Pharmacy in the Army and Navy; the removal of restrictions on the sale of medicinal explosives; the withdrawal of the enemy trading lists in Mexico and South America; and many other subjects as occasion arose.

The year has been a very busy and trying one. Very many perplexing questions have been asked under the amended Harrison Act, the new liquor laws and the new excise tax provisions. Too often these questions have been answered without full opportunity of careful consideration. The whole country has been and is working under pressure, and we are not immune from the common affliction of too much government. Let us hope, however, that pendency of a presidential election will effect relief, at least for a time, and give pharmacy as well as other interests a chance to breath.

C. M. WOODRUFF, CHAIRMAN.

REPORT OF COMMITTEE ON TRANSPORTATION

**At the Ninth Annual Meeting of the
American Drug Manufacturers Association**

The past year has brought a number of changes favorable to the shipper. The consolidated classification, combining three publications, and unifying the rules and regulations in various territories, has become a reality. Several items were added to the description of articles, taking drug rates in trans-continental freight tariffs, making a substantial reduction in freight on these commodities. To clarify the items and insure uniform interpretation of them, hair tonic, liquid rennet, glycerin and several others were given specific mention.

Transportation Legislation of Past Years

The principal change in the bill of lading is the change in the time limit, of two years one day, from the time of delivery, or, from the reasonable time in which delivery should have been made, in which to file suit for unadjusted loss or damage claim. Under the conditions of the bill of lading, previous to February 29, 1920, the shipper was compelled to file claim within two years and one day after delivery of the property, if his claim had not been adjusted. The effect of this provision, which was upheld by the courts and the Interstate Commerce Commission, was to cancel the debt if the shipper failed to carry out this condition. The carrier could not then make payment without making himself liable for rebating, as the shipper no longer had a valid claim against him. No decisions were rendered to show whether the shipper also would have been liable under section 10 of the "Act to Regulate Commerce." Modified conditions allow suit to be filed within 6 months after the claim has been definitely declined by the carrier in writing, but not after. It cannot be definitely stated, at this time, whether the provision can be made retroactive, and claims which became outlawed under the conditions of the bill of lading under which they accrued, be revived and prosecuted. The consensus of opinion is that they can be, and that all claims which have been declined because suit was not filed within two years and one day, can be reopened and adjusted on their merits. Test cases will no doubt be made, and a definite decision rendered, either by the Supreme Court, or the Commission.

Tariff regulations governing the posting, publication, and filing of maximum rates, fares and charges, by common carriers, by water in Interstate Commerce, were approved with the following sugges-

tions: To eliminate duplications, and make information promptly available, all tariffs to be issued by an authorized agent instead of by each individual carrier. Regulations are substantially the same as rules governing rail carriers.

The Cummins-Esch Bill providing legislation for the return of the railroads, and termination of government control, was approved. The bill, as passed, is not entirely satisfactory to anyone. It has taken the roads out of the hands of the government, insured them of adequate revenue, and safeguarded the public against exorbitant rates. The problem is a big one, and has no doubt been solved in the best way possible, and can be worked out satisfactorily to all. Amendments will have to be made as the need for them becomes apparent.

With the return of the carriers to their corporate managements, and with radical changes in the transportation laws, innumerable changes in shipping regulations, rules and practices will be evolved. Some of these have come, others will follow as soon as practice and experience show them to be advisable.

The new classification, which became effective December 30th, contains many changes in rules, packing requirements, minima and rating. Numerous changes will have to be made to eliminate discriminations which still exist in that publication. The work of compiling the classification was in progress for years. It was not until government control became effective that it was finally rushed to completion. New express rules have been issued governing both packing requirements and the handling of claims. Those having export and import shipments have no doubt resigned themselves to almost daily changes in rules, regulations, etc.

If the industry is to receive the service it must have, rates that are just and reasonable, it will mean that the traffic man must spend a great deal of his time reading and analyzing what the effects of proposed changes and modifications are going to be on his industry and work. Immediate effects of a proposed change may be negligible, but resultant changes may have an important and also serious effect upon the economic development of the industry. Such changes must be anticipated and guarded against.

Perhaps the most vital problem is adequate service. Service must pay in order to be maintained. Over-competition often results in poor service, or service at an excessive cost. Additional parallel lines of transportation to a definite territory should not be encouraged, unless the volume of traffic is sufficient to secure the necessary returns to

sustain the lines. Better results can be secured in most cases by co-operation, and the development of present facilities to their fullest extent.

Exemption of Medicines From Embargo

Steps have been taken to secure exemption from embargoes for drugs and medicines. They should be placed in the same class as perishable articles by both the express and railroad companies. It is usually at times of an epidemic, or congestion when medicines are most needed, that it becomes necessary to declare an embargo against the afflicted community. Drugs and medicines, unlike most commodities, are in demand for but a limited time, and that is while there is sickness in the community.

When shipments are obstructed by every kind of embargo, the health of a community is menaced, and sales are lost, because, while shipments are delayed in transit and held up by the embargo, the patient has either recovered or died, and in either event has no further use for the goods when they finally arrive. Communities are not always prepared for an epidemic, and delays in getting the necessary medicines to them in many cases result in more serious consequences than would otherwise be the case. Individual and associate action should be taken, and specific rulings requested governing the transportation of drugs and medicines.

Packing and Marking Shipments

During the past year the question of claims has attracted more attention on the part of the transportation agencies than ever before. Capacity loading and greatly increased tonnage volumes have resulted in rougher handling and added strains for shipping containers. Excessive damage has resulted. Vigorous steps have been taken to check the enormous losses the carriers have sustained from this source.

While the carrier has paid the claims, in the majority of cases, they have not all been entirely his fault.

The greatest negligence on the part of the shipper has been in packing and marking the shipment. If shipments are not properly and durably marked, and carefully packed to stand the strain of overtaxed transportation facilities, they had better not be sent at all. The loss resulting from these causes forced the American Railway Express Company to issue new packing rules for express shipments. This, however, was not done until their own employees had been instructed in the proper method of handling express shipments to prevent losses,

as far as it was possible for them to do so. The recent campaign by the railroads and express companies intended to assist the prevention of claims, is a step in the right direction, and merits the co-operation of the shipper.

An inspection of the freight terminals, "On Hand Dep'ts," and "No Mark Bureaus," discloses a large percentage of shipments that should never have been sent out or accepted by the transportation company. The most frequent causes of loss due to shippers' negligence, are the use of old and worn out boxes or barrels. Insufficient nails used in boxes, and the use of second-hand corrugated paper boxes should be discouraged. Ordinarily they will not stand more than one shipment and offer any protection to their contents. In using corrugated paper containers the flaps should be firmly glued down their entire length. Box manufacturers will furnish a chart, upon request, showing the number of nails to be used in different surfaces, for various kinds of wood, to secure the maximum amount of protection. For absolute safety, a shipment of drugs and medicines weighing up to 100 pounds should withstand a direct drop of six feet onto a concrete floor. This may seem to be a severe test, but less than carload and express shipments are sometimes subjected to even greater strains while in transit.

Claims for loss most frequently arise through theft while in transit. The carrier, under his contract to transport, is liable for any loss or damage to a shipment while in his care. Precautions are taken by him to prevent loss as far as possible, and the shipper should exercise a like precaution. Shipments, the contents of which are not known, offer very little attraction to thieves. Indicate the contents on the outside of the container and they become the center of attraction. The contents of the shipment should, therefore, never be plainly shown on the wrapper or the box.

Means of identification should be placed inside of every shipment and should show the name of the consignee and shipper and point of origin and destination. Outside marking may become obliterated, but with some means of identification the carrier is able to make correct delivery with but little delay. The carrier will pay any loss or damage to the shipment when it is shown that it was received by the consignee in a damaged condition, or if the carrier is unable to produce a delivery receipt.

Claims Against Carriers

He pays for a property loss only, and cannot compensate the customer for this inconvenience, or loss sustained through his failure to receive the goods in good condition, nor will the payment of the claim entirely remove the dissatisfaction it has caused. This is especially true if there has been some delay in making adjustment. The claim, if properly filed and supported with the necessary documentary evidence, is usually passed for payment. Few claims properly filed are delayed 30 days. Some carriers are still inclined to delay the adjustment as long as possible. They are, however, becoming more of an exception than a rule. "The Act to Regulate Commerce" compels the carriers to investigate thoroughly, and ascertain the validity of all claims before payment. This sometimes takes considerable time.

Each claim should, therefore, be supported with all of the documentary evidence it is possible to obtain. If the original bill of lading or freight bill has been lost or destroyed, indemnity bonds must be sent with certified copies of the missing documents. Where the claim is for loss or damage of a concealed nature, a concealed loss or damage blank, properly completed, should be attached to the claim papers. The carrier will demand these documents before making payment, and much time can be saved, and often confusion avoided, if they are included in the original file.

The law allows the claimant to file claims with the carrier at the point of origin or destination. Wherever possible, it is advisable to file claim with the delivering carrier. His records must be looked up, and it is his agent who has the necessary information to pass a claim for payment or rejection.

Manufacturers who are called up on to handle claims and make adjustments for their customers, are often asked to pay for losses for which the carrier is liable. These cannot be collected, however, because the necessary steps were not taken by the consignee to establish the carrier's liability. This is primarily the case where the loss or damage is of a concealed nature. Documentary evidence in such cases, should be sufficient to sustain a case in a court of law. The consignee must report the condition of the shipment to the agent of the delivering carrier as soon as it is discovered, and give him an opportunity to make an inspection.

Salesmen should be instructed in the proper method of procedure in such cases, and an active campaign instituted to gain the co-operation of the customers. Claims for concealed loss or damage should

in every case be supported by the following documents: the original bill of lading and freight bill, or certified copy with an indemnity bond; statement of loss or damage on approved form for filing claim, original or certified copy of invoice, copy for inspection report, if notation is not made on the freight bill by the delivering agent. A concealed loss or damage blank must be completed by both shipper and consignee, and an affidavit or statement from the drayman handling the shipment. A claim supported in this manner will receive more consideration, and unless the carrier can prove without a doubt that the loss or damage occurred at some time other than when the shipment was in his possession, adjustment will be promptly made.

Freight Rates

A general increase of freight rates has been predicted. This question was up for consideration by the Railroad Administration before the return of the roads. During the 26 months of federal control, the government loss was approximately \$715,500,000. This was not entirely due to inadequate rates, but that some provision will have to be made to meet the tremendous increase in the cost of commodities and labor is a foregone conclusion. Prices of equipment have advanced 300 per cent. Two hundred thousand freight cars will have to be supplied by October 1, 1920, if serious delays in transportation are to be avoided. Much work must be done in the way of maintenance to put the railroads in good condition to handle efficiently the large volume of tonnage offered for transportation.

Rates have not increased in proportion to the value of commodities transported. In 1914 the average commodity value per ton of freight, originating on American railroads, was \$56.00. In 1919 it had increased to \$119.00, making a difference of \$63.00 per ton, which was not contemplated in existing rates. Freight charges per ton in 1914 averaged \$2.00. In 1919, \$2.80. The percentage of freight charges to the value of commodities in 1914 was 3.6 per cent and in 1919 it was 2.4 per cent.

It is estimated a 25 per cent increase in all freight rates will have to be made. This should be granted without objection as the need for it has been shown.

There is, however, another increase pertinent to drug manufacturers, and that is the cancellation of the west-bound commodity rates on drugs. This rate was inaugurated years ago to attract business from the water carriers between Eastern and Western coast points, to the lines of the trans-continental railroads. With the entry of the United

States into the World War, this water competition was eliminated, and has not returned to the extent of causing a loss to the railroads. It is, however, in the making and will soon be a formidable weapon against excessive rail rates. A committee of railroad men appointed to investigate alleged discriminations in rates in Western territory proposed that the commodity rates be cancelled, and class rates substituted because the rates in effect were made necessary by water competition, which does not now exist.

A few other commodities classed as high grade are also affected by the proposal. It is far easier to retain special rates than it is to obtain them. Should the proposal carry, the cancellation of special rates to other territories would soon follow. Vigorous protests have been filed with the Interstate Commerce Commission, with the result that the case has been set for rehearing at New York, May 3, Chicago, May 10, and Spokane, May 17. Some concessions no doubt will have to be made, but every effort will be made to retain the commodity rates. Your co-operation is needed, if a favorable verdict is to be obtained. If you have not yet sent your questionnaire to Secretary Woodruff, do so without delay, and arrange to attend one or more of the hearings. Your presence at the hearing will have a favorable effect on the commissioners present.

Can you promptly find the correct rate on all shipments? No? Neither can anyone else. Not only are numerous errors and overcharges made and much time spent in finding the correct rate, but the cost of publishing these rates is also far in excess of what it should be, and you are paying the cost. The task of revising the publication of rates will be a tremendous one, but it can be done.

The recent tariff published by F. V. Davis of the New England Freight Tariff Bureau, shows just what can be accomplished in this way. This publication of 694 pages includes rates that formerly covered 213 complete tariffs, and parts of 93 others. The tariff covers points in 16 states and some Canadian points. Twenty-three railroad tariff bureaus are relieved of the work of compiling and publishing their own tariffs.

Intra-territorial traffic in Central Freight Association territory is covered by hundreds of tariffs, which could all be incorporated in four or five publications. Present chaotic conditions must eventually give way to a more systematic method of rate compilation. Public opinion will have to supply the necessary demand to make a reality of

what has for some time past been but a pleasant anticipation of traffic and rate men.

The combining of freight tariffs, and the elimination of duplicate publications, will make necessary information readily available, and effect a saving of thousands of dollars annually for both shipper and carrier.

You can help bring about this revision by keeping the matter constantly before the traffic managers of the railroads in your territory. Some have expressed a strong desire for such a change, but the task of compiling these tariffs causes hesitation on the part of the tariff publishing agencies. Individual and combined action will help overcome the difficulties that confront this very desirable change, and promote its adoption.

GEORGE M. RIEFER, CHAIRMAN.



SOURCES OF CREDIT INFORMATION

Report of the Committee on Credit and Collections at the Ninth Annual Meeting of the American Drug Manufacturers Association

In view of the excellent report of the Committee on Credit and Collections of a year ago, and the interesting discussion on trade acceptances which followed the addresses of Messrs. Marshall and Wetherill on that most important subject, your committee this year has found it exceedingly difficult to prepare an interesting program.

As a result of an inquiry sent to various members, several suggestions were offered concerning subjects which might prove worthy of discussion. From the replies which your chairman has reviewed, it would seem as though a large portion of the membership has displayed considerable interest in the subject of

Interchange of Credit Information

have been followed for gathering this much desired information, chief among which are:

1. Direct communication with other creditors.
2. Commercial Agencies.
3. Special Trade Agencies.
4. Tabulated ledger interchange bureau.

These methods are more or less elaborated upon in a recent article appearing in one of the bulletins of the National Association of Credit Men. When the direct method is followed, it is, of course, necessary to first ascertain the name and address of other houses selling the particular customer, which is usually done by securing a list of references from the customer, either direct or through the salesmen. The average reference, as given by the customer, if unsupported by other sources of information, is perhaps the weakest foundation upon which the credit relation can be established. This is true, not because of any reflection upon the integrity of the buyer, or of the seller, referred to, but because of the necessity which confronts every merchant that he maintain reasonably satisfactory credit relations with some sources of supply, in order that he may be able to remain in business, and because of the fact that it is perfectly natural that the merchant should give, as reference, only those with whom he has maintained such relation.

Such ledger information as is furnished by the mercantile agencies is of value, but is so limited in its scope and at times is necessarily so old as to detract materially from its usefulness. The special agencies meet the important element of timeliness far more satisfactorily, but

are so limited, both as to locality and line of business, that they are unable, frequently, to give a full and comprehensive report.

With regard to the tabulated ledger interchange bureau, as is quite generally known, several associations already exist for this very purpose. Most prominent is that of the National Association of Credit Men. It is made up of over thirty thousand representatives, from practically every business, and undoubtedly has more influence than all other bureaus and associations put together. This association has now formed over fifty interchange bureaus, located in practically all of the larger cities and through its bureaus it is possible to secure credit data concerning a prospective customer from a varied line of creditors. Controlled by the local association through men of unquestioned integrity, trained and educated to an appreciation of their confidential relations and supervised by the national office, the possibility of an ethical breach through misuse of credit information is reduced to a minimum.

One hundred per cent interchange demands that the information be gathered from every possible source of supply. The time was when the merchant devoted himself largely to one line of goods, purchased in a single market, and in isolated cases the same is true today, but so large a percentage of merchants are now carrying such a variety of merchandise and make their purchases in such widely scattered markets, that information gathered from a single line of trade or within a limited territory may tell but a small part of the story. The interchange bureaus meet these conditions admirably. Penetrating every line of trade and every market in the country, if properly developed and supported, will ultimately be able to disclose to the inquiring creditor a very near approach to the actual conditions of the debtors' accounts and bills payable.

An objection sometimes raised is that ledger experience is misleading. Unless the terms of sale are also stated, the fact that a certain customer may have been reported as paying cash in ten days, would mean nothing, if the commodity purchased was never sold in any other way.

Another well-known association is the American Medical Trade Association of Chicago. It probably has a greater fund of credit information on physicians than any other association.

Should A. D. M. A. Establish Credit Bureau?

A question frequently asked is whether it is desirable for our association to affiliate with one of the above mentioned associations,

or form our own bureau. The sentiment seems to be about equally divided as between affiliation with the National Credit Men's Association and the formation of a credit bureau of our own. Bearing directly upon this question, a quotation from a letter of one of our members would perhaps not be amiss. It follows:

"We question very much the advisability of endeavoring to form our own credit bureau. A multiplicity of small associations cannot secure the varied credit experience, nor wield the influence on public sentiment and proposed legislation that a single large association can. Hence, it would seem that in forming our own credit bureau, we would largely duplicate the work, inasmuch as most of our members would undoubtedly retain their membership in the National Association of Credit Men."

Another member, however, writes:

"It would be very desirable to have a credit bureau of our own, as perhaps more attention would be paid to details in our interchange of credit information. This is a subject which I would like to see taken up at the annual convention."

It has been proposed that as an aid to the interchange of credit information the association might seriously consider the establishment of a special bulletin service. This, seemingly, though, would be a repetition of the service which many members already have in the bulletin issued by the National Credit Men's Association, as well as the information supplied by the Drug and Chemical Mercantile Agency, and others. Moreover, as one member states, it would hardly be feasible, without throwing a burden on the secretary's office, entirely out of proportion to the possible value. Bulletin service, except on matters of very vital importance, such as current legislation, etc., becomes so routine in character that they are little observed.

The "dead beat" list is usually productive of much discussion. Nearly all members who deal direct with the druggist or physician would welcome such a list. One member expresses the sentiment of many, in the following remarks:

"Regarding a list of poor credit risks, I think an interchange of those who have been habitually infringing upon the good nature of the trade should be posted, and it would be well for the association, possibly, to send out blanks monthly, requesting the members to list such customers who, from experience, have taken advantage of credit extended to them. These lists, of course, should be kept confidential, coded and returned to a central bureau for safe keeping."

A western member, however, foresees some difficulties and expresses himself thus:

"This is decidedly a ticklish subject. We question very much if you will find very many members or associations who would be willing to give out a complete list of people they consider poor credit risks. We are

always willing to interchange information on any particular customer, but giving out a wholesale list would be another matter. Would it really be worth while? One firm may have credit difficulties in collecting from a customer, while other members may have no trouble. There is also always a chance that a customer may get on his feet and live down a poor start. With these points in mind, we doubt if a compilation of a general list of poor credit risks would justify itself."

Actual practice bears out to a large extent the views of this member, as is shown by the extract from a letter recently received from the secretary of the American Surgical Trade Association, as follows:

"My experience has been that it is almost impossible to get the members, except in a few rare instances, to report to a central office their credit information, and the credit information of this office is obtained almost solely by handling the collections of the members. In a way, this has worked out quite satisfactorily, because the members have to send their claims for collection somewhere, and if we can convince them that we can give them better service than they can get elsewhere, they will naturally send them here. Handling the claims gives us quite complete credit information and the commissions obtained by the handling of collections largely defrays the expense of obtaining and printing the credit information. We have handled over 50,000 claims against physicians and hospitals since the office was started and have handled more than one claim against most of the physicians who intentionally try to defraud their creditors, so that while our book is not by any means a complete credit guide, it is almost a complete deadbeat list."

Reporting and Collection Agencies

Closely allied to the subject of Interchange of Credit Information is that of Reporting and Collecting Agencies. Mr. Leighton, of W. J. Bush & Co., one of the members of your committee, has submitted a very complete report on this subject, which we believe may well be quoted:

"The extension of credit is possibly the most important function of the selling end of any business in these up-to-date times. It is a matter that requires judgment, tact and prompt decision by the credit man, who has to weigh the evidence before him, however incomplete and unsatisfactory it may be.

"Most members of the association belong to one or more of the mercantile agencies, but unless the reports from these agencies are of recent date, they can only be used as an index to the policy to be pursued.

"A credit man is always willing to reverse his adverse decision on receipt of more favorable reports, so it is better to delay making a final decision on incomplete information than incur the ill-will of the prospective customer by a refusal. A frank and courteous letter to the customer himself should bring the necessary references.

"The ledger experience of the seller is the best guide for the extension of credit, but when an order is received from a new and unknown

customer, the credit ratings given by such agencies as R. G. Dun & Co. and the Bradstreet Agency will materially assist the credit man in making his decision.

"It would be well to encourage all who are looking for general credit to annually file sworn statements of their assets and liabilities with the mercantile agencies. Credit men attach more importance to such information received through the reporting agencies than to favorable trade opinions. As is well known, it is a punishable offense to furnish an untrue signed statement to the agencies.

"The chief trouble with the agencies' reports is that they are so seldom up to date, and there is frequently serious delay in obtaining special reports which may not be forthcoming, even when asked and waited for.

"The customer's own banker is a legitimate source of information as to his credit standing, and it is to be regretted that business practices in the United States have developed along lines that have failed to include this valuable adjunct to the machinery of business. Is it that the business ethics of the country forbid, or that the bankers object to rendering this service, or that the mercantile agencies think that they really fill the bill and are encouraged in this belief by the bankers and the business public? Every bank in Europe has a credit information department, through which it exchanges information with every other bank.

"Several members of this association have joined Group 5 of the Interchange Bureau of the New York Credit Men's Association, which was started in January of this year. This is composed of chemical, drug and dyestuff houses; Mr. F. H. Downes, of Mallinckrodt Chemical Works, is chairman of the committee that formed this unit, and it is expected that its membership will increase rapidly. The New York Credit Men's Association is affiliated with the National Association of Credit Men, which should include every member of the American Drug Manufacturers' Association. The work that this interchange bureau does is to collect from the members up-to-date ledger experience with their customers for mutual exchange.

"It has been asked to what extent do credit departments rely upon the mercantile agencies' reports. We should say that they are of value in a general and superficial way only, but that when one has to exercise critical judgment it is necessary to supplement the information through other channels. Even if the agencies include in their reports the ledger experience of creditors, these reports are of little value unless they are recent.

"Generally speaking, attorneys of the reputable collection agencies are bonded, thereby guaranteeing that the creditor will receive all moneys collected. Both Dun and Wilbur guarantee to remit moneys collected when claims are placed with their offices. This guaranty does not, however, cover claims sent direct to attorneys.

"R. G. Dun & Co. charge 3% if collected on demand, making a minimum fee of \$2.00. If placed in the hands of one of their attorneys the charge is 12½%, or, if over \$300, 10%.

"The Wilbur Mercantile Agency, with offices in Chicago, Boston, Detroit, St. Louis, Cleveland, Kansas City and New York, charge 15% on first \$300, 8% on excess of \$300 to \$1,000, 4% on excess of \$1,000; minimum fee, \$5.00. Claims under \$10, 50%; minimum fee for suit, \$7.50.

"L. C. Mott & Co., 320 Broadway, New York, specialize on collecting from physicians. They charge 15% on amounts over \$20; minimum fee, \$3.00.

"With regard to special reports on physician customers, neither Dun nor Bradstreet are in a position to furnish them, but the following agencies include such work in the interests of retail dealers:

Retailers' Commercial Agency, 30 W. 36th St., New York.

Established 1873. They furnish their credit guide with:

30 Special reports for.....	\$ 50.00
100 Special reports for.....	100.00
250 Special reports for.....	210.00
500 Special reports for.....	400.00

The Retail Dealers' Protective Association, 34 W. 33rd St., New York City. Forty-five years in business. Their rates are \$75 per annum, and they furnish a reference book and 100 special reports; additional reports at 50c each. Correction sheet on credits issued monthly.

Both of the above report on private individuals only; they do not collect.

"There is a National Association of Mercantile Agencies with over 140 members, through any one of which collections can be made from physicians in any part of the country."

A report of this character would not be complete unless we touched for a few moments at least upon the subject of

Terms of Sale

No attempt was made this year by your committee to obtain the views of any considerable number of the membership on this important subject. As many will doubtless recall, last year's committee reported that as the result of the questionnaire, it was found that, generally speaking, the medicinal chemical, essential oil and surgical dressing manufacturers gave terms of 1 per cent ten days, 30 days net.

The terms of the pharmaceutical houses, on the other hand, show a wide variation, however, leaning toward the shorter terms of 1 per cent ten days, net 30 days, to wholesalers and special formula business; while granting in some instances 2 per cent for cash to the retailer and physician, and also at times extending the credit period to sixty days.

Your committee feels that a discussion of this subject would bring out some valuable suggestions and might pave the way for greater uniformity in terms of sale of our members. Possibly the

letter which follows, from one of the members of this committee, Mr. Conderman, of Hance Bros. & White, would offer a starting point for such a discussion:

"I have always been an advocate of terms to all being thirty days net, with an allowance for cash received within ten days from date of invoice of 1%, but it seems to be the general opinion that 2% should prevail. In our particular business we allow 1%, and wholesalers 2%. That is, physicians, druggists and the retail trade are in one class, wholesalers and manufacturers in another. It would be very advantageous, however, if they could all be treated alike, for the cash discount is just as important to a small man as it is to a large one, and vice versa.

"In no case would I advocate the allowance of a cash discount or a twenty or thirty-day period. The basis should be strictly ten days.

"The only exception to this rule is where a customer purchases five or ten times a month in small amounts, aggregating \$100 or over; he then should have the privilege of taking his 1% discount on the 10th of the month succeeding the previous month's purchases. When he makes but one or two purchases a month, this exception should not be granted.

"We find that buyers in the South and in the Far West look for 60-day terms, and, like all manufacturers, in some cases we have had to make this concession, notwithstanding the fact that our bills go out marked in red ink 'thirty days net.'

"We never post-date our invoices. In some cases, but not very generally, we make an additional allowance of 30 days, where orders for products liable to freeze were solicited before cold weather set in. In other words, we make the terms 60 days instead of 30, on this class of merchandise.

"With reference to transportation, it is our practice to allow full charges on orders which amount to \$25 or over, shipped to points east of the Mississippi River; no allowances on orders under \$25. On points west of the Mississippi River, we maintain a regulation permitting a freight allowance of 5% of the bill. We did at one time allow up to 10%, but transportation charges have so materially advanced that we reduced it to 5%. Strange to say, we have not had a single complaint from those to whom we previously allowed the 10%.

"It seems to me it has never been possible to maintain any standard of cash discount. It has been tried over and over again, and there have been understandings that 1% only would be generally allowed, but it has never been maintained, so that the present practice among the trade is to allow either two or one per cent, according to the judgment of the respective houses.

"If it could be arranged at the next annual meeting of the American Drug Manufacturers' Association that either the Credit Man or the Treasurer, or a responsible representative of the head of the house, meet to discuss these matters fully, I think it would be to our mutual advantage. Perhaps then a somewhat more definite program would be fol-

lowed. The accomplishment of this matter would be a decided improvement in handling financial matters of all houses. We should all practice the same terms. Discount should be standard and fixed."

Your committee has been unable to learn of the use of trade acceptances to any great extent by our members. Among the pharmaceutical houses, especially the smallness of the average transaction no doubt has contributed to its non-use.

Credit Insurance

We are advised that there are not many insurance companies writing what is generally known as Credit Insurance which furnishes protection and indemnifies for loss by bad accounts.

We understand the general principle to be that of reimbursing the creditor for loss over certain amounts, provided accounts are not paid promptly at maturity, some requiring that "covered accounts" must be cared for by the company in case they are not met within thirty days after maturity.

A feature of insurance which might be discussed in this connection is a form of policy issued by the National Surety Company to cover loss which may be suffered by the alteration of figures or forgeries.

Trade Abuses

In conclusion, your committee desires to emphasize the need of an earnest effort to remove trade abuses, such as the unjust taking of cash discounts, returning merchandise without justification or permission. The correction of these abuses lies largely with credit grantors who, should they show a determined front and an unwillingness to deviate from rightful positions, would very quickly remove these abuses. With the new era of business, nothing appears of greater importance than a strict fairness between debtor and grantor in the credit relation, that nothing be asked nor given that does not conform with right and justice.

Respectfully submitted,

R. S. EATON, Chairman.

FIRE INSURANCE CONDITIONS

Report of the Committee on Insurance Problems at the Ninth Annual Meeting of the American Drug Manufacturers Association

Your committee on insurance problems has confined itself entirely to getting specific and definite information as to fire insurance coverage and conditions among our various members.

Your committee wishes to express its appreciation and thanks for the co-operation given by those members who answered our questionnaires, and for the frankness with which they were answered.

Reciprocal Policies

Practically all of our members carry from 80 to 100 per cent co-insurance. Of the twenty-eight firms answering the fire insurance questionnaire more than 75 per cent insure with the old line companies, feeling that they are safer and more stable, and that the cost is definite. Four members insure with both old line companies and mutuals, or reciprocals. One member insures with reciprocals alone. In the latter two cases the members feel that the mutual or reciprocal insurance is sure and safe, that the inspection and service are better, and that the cost is lower.

Unquestionably, there are some very good mutual and reciprocal insurance companies with excellent records, but there are many about which we cannot speak so well. It is very advisable for any members considering mutual or reciprocal insurance to make a most thorough investigation and take plenty of time to do it, to be sure of getting safe and sound companies.

A great deal of inter-insurance information of a nature decidedly opposed to reciprocal policies may be found in a book called *Inter-Insurance*, compiled by John F. Ankenbauer, of Cincinnati.

Premium-Reducing Improvements

Sixteen out of twenty-eight of our members report practically all of their main plants sprinkled; thus a very considerable portion show their plants still unsprinkled. In this connection we can only suggest that the latter consider seriously the matter of sprinkling. It will not only greatly reduce the risk of fire, which in itself is worth much to the insured, but it should make a reduction in rate to approximately one-quarter of the present rate, unless the risk is fire-proof. In normal times the saving in the insurance premium would show a handsome return on the expense of sprinkling. Now, the increased cost makes the return on the investment very moderate, but still worth

considering, and when the costs go down should be decidedly worth considering.

None of our members report any objection to fire insurance legislation in their states.

Many of them, however, report that their sprinkled and unsprinkled rates have been in effect from five to ten years, and in such cases we suggest that it might be very advisable to have a careful survey made of their plants in order to see what improvements can be made or apparatus installed of a fire preventing nature, which will serve to reduce the insurance rate—such inspections and examinations to be made at least once a year. Most of us get so used to looking in a routine way at things with which we are continually associated, that we sometimes fail to notice an opportunity for improvements, and it is just such an annual inspection by competent authorities that will bring to light our deficiencies.

The great majority of our members reported that they had had their risks re-inspected within recent years, and had gotten a reduction in rate, either by the installation of sprinklers, fire doors, fire extinguishers, etc., or by eliminating unnecessary hazards. Fire insurance is not a matter that can be left year after year to run itself. It must be continually watched, improvements and changes continually made and the policy requirements continually checked up if the insured is to get the insurance he wants and expects at an advantageous rate.

Very few of our members report any systematic inspection of their plants by a committee or individual. This is a matter which might well be considered. A monthly inspection by a committee of two or three competent employees, covering the entire plant would, in most cases, be worth while, purely from the point of view of reducing the hazard.

Fire Drills

Only seven out of twenty-eight replies indicated fire drills for employees, and of these only four have regular fire drills in charge of a designated competent person. These drills are held in some cases monthly—in others, bi-monthly. In the case of old-fashioned factories where means of exit are more or less limited, and stairways and elevators are not fire-proof, fire drills should be seriously considered.

Insurance Rate Surcharge

The great majority of the members reported a 10 per cent surcharge on their insurance rate during the war, but all who have re-

ported paying it, said it had been taken off, effective September 1st last.

New Appraisals Vital

We were glad to note that most of our members have had a plant appraisal made in recent years, an appraisal of buildings, machinery and equipment by a competent appraisal company. This is a good asset for any business concern, and a recent appraisal is particularly valuable because there has been so much increase in production cost during the last three or four years. While the great majority of our members report that they consider that they have increased insurance to the point where they are well insured, and have fully considered the cost of reproduction, nevertheless, four members report that they had made no such increase to allow for reproduction costs, and one member reports that he has made no such allowance on his buildings. We can only point out that members who have not done so are taking a big chance, and if they have co-insurance, which most of them have, are themselves carrying a much larger part of their insurance than they think they are.

Anti-Discrimination Acts

Nearly all members report small losses in recent years and satisfactory adjustments. Most members report state anti-discrimination acts in their states, and that such acts are working satisfactorily. Anti-discrimination acts, as a rule, are working well everywhere. They prevent charging too much on a good risk to make up for too little charge on a bad risk or vice versa. They make all risks stand on their own bottoms, and prevent the large insurer from applying pressure in getting a cut rate on his insurance (as he sometimes used to do), and the main anti-discrimination acts are fair, logical and practicable.

Individual Advice for Members

At the opening of this report we indicated that it had been our intention to get specific benefits for members from the fire insurance questionnaire. Your Committee, therefore, have placed in the hands of the Secretary of the Association suggestions for him to give practically every member who answered the questionnaire. These suggestions, of course, cannot all be carried out, but we believe most of them will be carried out, because they are practicable. Many of our members have no inventory exemption clause in their policies, which means that in case of a small fire they may have to go to a good deal of trouble in getting inventory values. This is not at all necessary,

as it is a very common thing to include in policies an inventory exemption clause.

Many do not exclude from coverage excavation costs, foundations below the ground level, cost of basement concrete floors, cost of underground sewers, etc. These all go into the cost of the building when built, and yet there is certainly no advantage in paying for insurance on the cost of digging a hole in the ground which can never burn. Most large companies exclude these from their policies.

Some of our members do not have permission in their policies to work at all hours, nor to keep on the premises more than a gallon of gasoline, nor to make reasonable repairs, alterations, etc., without special permission. All of these shortcomings in detail we shall ask Mr. Woodruff to point out specifically to each of our members in accordance as each member has shown by his questionnaire that he does not have these advantages in his policy. We shall also suggest to each member specifically who has not in recent years increased his insurance on building and fixtures that he promptly investigate the matter.

Your committee has a complete chart showing the situation, so far as each of our members is concerned, with regard to every item about which we asked in the questionnaire. This chart also has listed for the use of Mr. Woodruff and next year's insurance committee what seems to be the shortcomings in the policies of each of our members. We are hopeful that in actually getting some definite data which will enable us to give these specific suggestions to our members we have really accomplished some good. It should be borne in mind that any suggestions made are the result of pointing out what advantages the particular member written to apparently lacks, but which various other members of the Association apparently enjoy. These suggestions, therefore, should be entirely practicable, except perhaps in some unusual and special cases where extraordinary circumstances exist, of which your committee has no knowledge.

Increased Reproduction Costs

Your committee cannot close this report on the fire insurance of our members without again expressing its surprise that a considerable number of members have failed to increase their insurance to take care of present reproduction values on buildings, machinery and fixtures, less depreciation. We cannot too strongly urge members against such a policy unless they are fully aware of what they are doing.

Here is what happens to a firm carrying say, 80 per cent co-insurance and which has failed to properly increase the insurance on account of increase in reproduction costs:

Three years ago:

Value of building and contents.....	\$100,000
Insurance carried.....	80,000
Loss by fire.....	40,000
Paid by Insurance Company.....	\$40,000

Now:

Value of building and contents.....	\$200,000
Assured should carry 80% of value, or.....	160,000
*Insurance carried.....	80,000
Loss by fire.....	40,000
Paid by Insurance Company, 50% of value, or..	\$20,000
Assured must bear 50% of the loss, or.....	20,000
(*Insurance carried is only 50% of what assured should carry to comply with the requirements of the 80% clause.)	

From the above it is easy to see what happens.

If there are any of our members who have increased their insurance on buildings, machinery and fixtures, only 30, 40 or 50 per cent on account of such reproduction costs, they should again take the matter up, for the increase at the present time is more nearly 80 per cent. An appraisal by an experienced appraisal company is the surest way of knowing just what your reproduction cost, less depreciation (commonly called sound value), is.

We urge that those members of the association who during recent years have not had their plants surveyed and re-inspected by the insurance company with the idea of finding out what improvements or installations could be made to substantially and profitably reduce the insurance rate, should consider the matter promptly. Insurance companies are usually glad to make these inspections without charge and often they are productive of considerable saving to the assured.

Use and Occupancy Insurance

In the resolution of last year's meeting, authorizing the president to appoint a committee on insurance problems, it was requested that the committee give special attention to use and occupancy insurance.

Unfortunately our second questionnaire, which includes U. & O. insurance, has not yet been filled out and returned by our members; consequently its data is not available. There is this to say, however, about U. & O. insurance: it is comparatively new and is decidedly worth while looking into.

U. & O. insurance protects you in the use and occupancy of your plant and contents. It might be perhaps more properly called "profit and overhead" insurance because the object of a firm in taking out U. & O. insurance is to insure its net profits plus (if it desires) necessary expense that it would be put to in order to maintain its organization, pay its taxes and take care of other necessary overhead expense while building up its plant after the fire. Usually the insurance is taken out for a definite amount per day for a maximum of 300 days. In case the plant is burned and out of commission, say for six months, the assured would collect the per diem insurance for 150 days. If the loss is a partial one—let us say 50 per cent—the assured (in case he has a VALUED form of policy) proves to the insurance company only that his plant is 50 per cent out of commission and he collects 50 per cent of the per diem insurance so long as his plant is out of use. If however, he has a NON-VALUED policy he must prove not only that his plant is 50 per cent out of commission, but that his actual loss is 50 per cent of the per diem insurance. In the latter case he must prove not only the percentage of his plant out of operation, but also the amount in dollars and cents lost. Insurance companies, however, have almost ceased to write valued policies and insurers in the future will probably have to rest content with the non-valued form. Even then, however, USE & OCCUPANCY insurance is decidedly important. When a going concern has a fire, its property loss is only a part and sometimes a small part of its total loss. Often times the loss of its profits and the necessary expenses which it must still maintain run into a very great amount of money. For this reason U. & O. insurance protecting against such losses has come to be regarded not only sound, but necessary by many of the largest firms in the country. And as the use and occupancy rate is the same usually as the fire rate, and in some cases slightly less, it is not expensive insurance, particularly for the firm with a sprinkled or fire-proof plant.

Suppose a firm's average net profit is a thousand dollars a day and it would need an additional thousand dollars a day to pay its officers, salesmen, scientific men, taxes and other necessary expense during a period when after a fire a factory is being reconstructed. Think what it would mean to such a firm even if fully protected on its *property* loss, to have to lose two thousand dollars per day for three to six or perhaps even more months! With a proper U. & O. policy it would be able during all this non-operating time not only pay

its regular dividends, but to pay its officers, department heads, salesmen, scientific men and others whom it wanted to keep, and pay all other necessary expenses so that when again in operating condition the entire organization could start just where it left off at the time of the fire. It seems to us that few executives who really consider what it means to the firm will care to be without U. & O. insurance. A firm with a fire rate of fifteen cents per one hundred dollars could get use and occupancy insurance for one thousand dollars per day for 300 days, at a cost of only four hundred fifty dollars per year.

Even if the only part of your plant that burned were the engine and boiler rooms, you would still recover full U. & O. per diem insurance if you could show that by such loss your entire plant was out of commission. Reimbursement would last for as many days as the plant remained out of commission except that the insured must use ordinary diligence and despatch to rebuild and restore. Partial losses are settled pro-rata. U. & O. is construed in insurance policies to mean net profits plus interest, taxes, royalty for machinery or process, salaries of office, scientific, manufacturing or traveling force such as are necessary to keep an efficient organization intact during the loss period, cost of lighting, heating and general maintenance during time necessary for repairs.

Your committee urgently suggests U. & O. insurance to those members who do not now have it as well worthy of consideration and tending to increase the soundness and stability of any concern.

Your committee on insurance problems has also undertaken to get a great deal of information regarding other kinds of insurance that our members carry, and when these questionnaires are received and the information tabulated will endeavor to have our secretary pass on to each member specifically such information as we think will be of benefit to the member through giving him greater coverage, better protection and reduced cost. The second questionnaire was sent out after the first questionnaire was completed and returned and, therefore, up to the writing of this report we have not had time to receive and compile the information. It will, however, be properly gathered together and passed on for the use of next year's committee on insurance.

We want to thank members who took the trouble of filling out, particularly the second questionnaire. We believe the information which we can gather together regarding tornado, use and occupancy, workman's compensation, sprinkler leakage, liability, boiler, riot and

other forms of insurance carried by our members will prove very useful.

We are sorry that it is not possible in this report to specifically point out the results of our investigation, but as the questionnaires are confidential it is quite obvious why we cannot point out in a report the advantages which some members have and the disadvantages from which others suffer. All these, however, will be covered by Mr. Woodruff in his letters.

Your committee is very grateful for the privilege it has had of serving the Association. It can only hope that the service will be welcomed and will be useful.

Respectfully submitted,

NICHOLAS H. NOYES, CHAIRMAN.

Committee's Report Discussed

MR. NOYES: I would like to suggest, for your discussion today, first, the matter of use and occupancy insurance. This is a comparatively new form of insurance, which most of our members do not carry, and yet it seems to me that it is very practical and quite essential, if you want to thoroughly protect your business.

Losses Not Covered by Fire Insurance

We should bear in mind that when we have a fire, the property loss is only a part of the loss; in some cases it is a very small part. Suppose your plant is out of commission for two months or three months. You want to continue paying your dividends; people rely on them; you want to keep your scientific men, your salesmen, some expert foremen that have been with you for ten or twenty years; there are lots of people in your organization you want to keep, that it would cost you a lot of money not to keep. Then you have got to pay your taxes; if your plant burned down today, you would have to pay your Federal taxes on last year's business just the same. There are lots of such things that involve heavy losses, if your plant is not operating.

Cost of Use and Occupancy Insurance

Use and occupancy insurance can be obtained at about the same rate as fire insurance, and in some cases at a lower rate. It is, after all, cheap insurance. Take, for instance, a firm that felt it would need

a couple of thousand dollars a day to take care of its profits and overhead—I mean its salesmen on the road, its salesmen's salaries, its scientific men, department heads, expert foremen, taxes and things of that sort. If that plant were out of commission three or four months, these items would mean a heavy loss. Now it would be mighty nice to have a couple of thousand dollars a day for every day your plant was out of commission. If that firm had a fire insurance rate of 15 cents a hundred, a thousand dollars a day use and occupancy insurance for 300 days would cost about \$450.00 a year, \$2,000.00 a day for 300 days would cost about \$900.00 a year. It is not an expensive item at all. A great many large concerns in the country in all lines of business are taking use and occupancy insurance.

Reciprocal Insurance

Then there is the matter of reciprocal or mutual insurance. It is a matter that should be gone into thoroughly, because the attorney in fact for a reciprocal company has very broad and extensive powers, and you want to be mighty sure that he and the organization he represents are all that you expect them to be.

Inventory Exemption Clause

A good many members do not have the inventory exemption clause, which provides that in case of a small fire they do not have to take any special inventory. Virtually it means that the insurance company will settle on the figures you present to them, if they feel that you are all right. It is just one of those things that avoids difficulties in settling small losses, and might as well be taken advantage of. You can virtually get it for the asking.

Valued Forms of Use and Occupancy Insurance

THE PRESIDENT: What percentage of the members, Mr. Noyes, carry use and occupancy insurance?

MR. NOYES: I should say offhand about 10 to 15 per cent.

THE PRESIDENT: The reason given by some manufacturers in our line for not considering use and occupancy insurance is the variability of our lines, and the difficulty they would encounter in proving actual loss. For instance, a pharmaceutical manufacturer would have no means of proving the sales on a particular fluid extract during the period of the inactivity of his plant. In other words, use and occupancy insurance, as applied to our business, would be entirely dif-

ferent from the practice of use and occupancy insurance as it concerns a plant manufacturing a principal commodity like automobiles.

MR. NOYES: I have not been up against a non-valued form of policy; the form which we took out some years ago, is a valued form which set a definite amount per day in the policy, and all we have to prove is that a certain percentage of our plant is out of commission; we do not have to prove the loss in dollars and cents. I understand that a valued form is very difficult to obtain. The insurance companies do not like it and try to get away; yet I am not able to say but that proper pressure might still get the valued form.

I think in your case you would have to rely on your previous twelve months' experience and records, in an adjustment. If you could show that you had made up so many pounds or gallons of fluid extract in the previous twelve months, that your average was about so much a month through the year, you could make your adjustment on that basis, as there is no reason to believe that for the next twelve months you would not do about the same or a little better.

Profit Insurance

We have a warehouse that is not connected with our main plant, and I wanted to cover that very much, because some of those drugs can only be gathered once a year, and there would be the dickens to pay to replace them. It is more important to be covered on such things than on materials you can replace in 30 or 60 days. I could not get use and occupancy insurance on that building at a satisfactory rate or under a satisfactory policy. The fire insurance rate on that warehouse happens to be high; it is not sprinkled. I told the insurance man what I wanted. He said, "We can give you what we call profit insurance. Figure out how much stuff you have got and what it would run into in sales and what profit you would make on it." I took out profit insurance on that material and the rate is just the same as the fire rate. It is virtually use and occupancy insurance.

If you have things in isolated warehouses, where the rate is high, or where you run into insurance complications, you can probably get what you want by profit insurance.

Use and Occupancy Insurance Explained Further

MR. BARTLETT: We had never taken out use and occupancy insurance until this year, when one of our directors brought our attention to it. He is a very large manufacturer in another line and had

just collected something like \$300,000.00 on use and occupancy insurance.

As a result, we called in our insurance expert. We have in Detroit a man whose business it is to give insurance advice to his clients on a retainer basis, and we have found him very valuable. I would suggest that those of you who do not employ an insurance expert should do so. Now this man is not an insurance man; he simply works for the insured, but he is a thorough insurance expert and is prepared to give advice on any kind of insurance. He presented to us a very splendid brief on this subject of use and occupancy insurance.

It is a very complicated insurance and it requires a very careful explanation to understand it. It is profit insurance. You take out insurance upon your profits, say on an amount equal to your profits of the previous year, and in case of a loss, the insurance is paid upon the percentage of profit which is represented by the portion of your plant which is put out of use. Use and occupancy insurance for a manufacturer is only available on his manufacturing plant and on his crude or partially manufactured material. You cannot insure your finished stock by use and occupancy insurance; at least that is the advice we have had. Our buildings which are devoted to finished stocks on the shelves are not insurable in that way. In other words, if you were running a shoe store, you could not get use and occupancy insurance; that at least is my understanding.

We took out quite a large amount of insurance, I think it was three million dollars. Our annual rate on this use and occupancy insurance was, as I recollect, three thousand three hundred dollars, so you see it is not a very expensive insurance, and in case of a loss, you make that up very quickly. The adjustments are complicated, however, and they are made according to the figuring out of the proportion of your profit which is represented by your loss. It figures out at so much a week, I think, and it is very necessary, to my mind, that in use and occupancy insurance you have the services of an expert to assist you in adjusting your loss with the insurance company.

Under-Valuation of Buildings

With respect to replacements, we found that we were very much under-insured on our properties because of the fact that we have not figured on the replacement value, and that we were, to a very large degree, co-insurers. In other words, if we had had a serious fire loss, we would only have been able to collect on the basis of the

original valuation of our building. If a building were destroyed, let us say, we are insured for one hundred thousand dollars, and we rebuilt at a cost of two hundred thousand dollars, the very most we could collect would be 90% on the original valuation of one hundred thousand dollars. In other words, we would be out of pocket one hundred and ten thousand dollars. We have very nearly doubled our insurance on our entire plant within the last year on that account, so that we might be covered for 90% of the replacement value of our building.

MR. MERRELL: On a building that cost us two hundred thousand dollars we found that we were forty thousand dollars under-insured.

MR. NOYES: This matter of insuring for full value is very important. No matter how small your loss is, if it is only a loss of five thousand dollars, you cannot collect in full if it is found that on account of a change in reproduction values, you are only insured for 40% instead of 80%, and if you have a ten thousand dollar loss, you are going to get only five thousand dollars.

According to my recollection, there is no clause in our use and occupancy policy on the finished stock. But it is not necessary anyway. If you lose your finished stock, your fire insurance covers that. What you want to be protected on by use and occupancy is not the property loss, but the month or the two or three or five that you cannot make any money.

Profit Versus Use and Occupancy Insurance

MR. BARTLETT: I might say in reply to Mr. Stofers thought that I do not think it would be possible to get use and occupancy insurance on stocks in branch houses. It is a manufacturing proposition.

THE PRESIDENT: It is specifically an operating insurance.

A MEMBER: Is not that where profit insurance comes in?

MR. NOYES: I have never tried to get profit insurance on a branch house, but on a warehouse in the same city I have gotten profit insurance.

MR. BARTLETT: You can get it on crude material or partly manufactured material but not on finished material.

Bonding Positions Instead of Employees

THE PRESIDENT: There are so many forms of insurance at the present day and so many problems arising which are perplexing to

the average executive. A gentleman endeavored to interest us in making a change in a bonding company, for the bonding of salesmen and employees, explaining that they had entirely abolished the plan of bonding specific individuals and that now they were bonding positions, and if Brown held the position of cashier today and Jones held it tomorrow, it mattered not to them; the position was covered regardless of how many times you changed the man. In the case of salesmen's positions, you were still covered whoever the salesman might be who created a loss.

This form of insurance was offered by one of the largest insurance companies in the country, and there is no question as to their financial ability. The explanation was that all the investigating process that have been in use have proven of very little value, that the law of averages prevails, and that they felt it was safer and more convenient for the insurer to insure the positions.

Riot insurance has been considered by many of our members, and I dare say that many of us employ it for our branches particularly for plants in certain sections. In these days of ferment and constantly changing conditions, the various forms of insurance which seemed to be gross absurdities a few years ago are urgent necessities today.



ALCOHOLIC MEDICINALS AND PROHIBITION

As Discussed at the Ninth Annual Meeting of
the American Drug Manufacturers Association

Report of the Committee on Alcoholic Medicinals

The Committee on Alcoholic Medicinals held its first meeting on October 10th in the office of the Secretary in Detroit. At this meeting various phases of the subject of alcoholic medicinals were discussed with particular reference to the attitude that the members of the Association should take relative to the manufacture and sale of alcoholic medicinal preparations which might be improperly used for beverage purposes. It was decided to ask Mr. C. M. Woodruff to draft a resolution, setting forth the attitude of the Association, and this resolution was to be presented to the members of the committee for their approval or disapproval. Mr. Woodruff drafted a resolution which, after some minor changes, was approved by the committee and in accordance with the decision of the committee was submitted to the executive committee of the Association to be, by them, submitted to the members of the Association for their endorsement or rejection. This resolution was as follows:

The Woodruff Resolution

WHEREAS, The prohibition amendment to the Constitution of the United States and the Federal law enacted thereunder, as well as the fundamental and statute laws of the several states, recognize the use of alcoholic liquors for medicinal purposes as lawful; and,

WHEREAS, The enforcing act recently enacted by Congress expressly exempts all alcoholic medicinal preparations unfit for beverage purposes from its definition of the term "intoxicating liquors," notwithstanding which certain alcoholic medicinal preparations, both pharmacopoeial and extra-pharmacopoeial, not fit for but capable of such use, are likely to be perverted to such use to satisfy depraved appetites, and,

WHEREAS, The American Drug Manufacturers' Association has formally considered what it can do to prevent such perverted use of such alcoholic medicinal preparations, therefore, be it hereby

Resolved, That the American Drug Manufacturers' Association would not be justified in embarrassing the medical profession in lawfully prescribing and administering such preparations by discontinuing their manufacture, and compelling physicians and pharmacists to resort to questionable sources of supply; and be it further

Resolved, That in harmony with the sentiments expressed at the first meeting of the Association in 1912, and at subsequent meetings, the American Drug Manufacturers' Association does hereby urge the medical profession to reduce the demand for alcoholic medicinal preparations to a minimum by ordering and prescribing non-alcoholic forms of the same therapeutic agents, whenever the individual physician, in the free exercise of his judgment, feels that he can do so with equal benefit to his patient, and be it further

Resolved, That the American Drug Manufacturers' Association will co-operate in every proper and possible way in the enforcement of those provisions of Federal and State Law that penalize the sale of medicinal

preparations for beverage purposes; and respectfully urges upon all enforcing officers that diligence be displayed in enforcing such provisions rather than devising rules and regulations unnecessarily embarrassing pharmacy in performing its functions as the handmaid of medicine; and be it further

Resolved, That the American Drug Manufacturers' Association urges upon all manufacturers and distributors of such preparations, the practice already adopted by many, of refusing to fill orders for abnormal quantities, or where circumstances and facts coming to the knowledge of the manufacturer or distributor warrant a reasonable suspicion that the preparations ordered are not in good faith intended for resale for medicinal purposes; and be it further

Resolved, That the Executive Committee of this Association be and is hereby instructed to secure the widest possible publicity of this expression of the unanimous sentiment of this Association, and to take steps to enlist the co-operative support of allied medical and pharmaceutical bodies, to the end that the purposes of the prohibition laws of the country may be forwarded with the least possible inconvenience to the lawful operations of Medicine and Pharmacy, so essential to the Public Health.

The Lynn Resolution

The first resolutions were later withdrawn by the Executive Committee and new resolutions were drafted by Mr. C. J. Lynn at the request of the Executive Committee for submission to the membership of the Association after approval by the Executive Committee and the Committee on Alcoholic Medicinals. The revised resolutions submitted by Mr. Lynn proposed the following changes in the resolutions as drawn by Mr. Woodruff.

In the preamble the first resolution recognized "the use of alcoholic liquors for medicinal purposes as lawful." The revision suggested recognizes "the use of alcohol as necessary and lawful for the purpose of extraction, solution and preservation in the manufacture of medicinal preparations." Further, the proposed revision, besides omitting the suggestion of diligence to enforcing officers in the resolution pledging co-operation of the Association, omits entirely the following:

"Resolved, That the American Drug Manufacturers' Association would not be justified in embarrassing the medical profession in lawfully prescribing and administering such preparations by discontinuing their manufacture, and compelling physicians and pharmacists to resort to questionable sources of supply."

The revised draft of the resolution contains the following new matter:

"Resolved, That this Association recommend to its members and to manufacturing pharmacists generally, that they refuse to manufacture and sell any alcoholic medicinal preparation which has been, or which may hereafter be designated as fit for beverage use to the end that our industry may be kept free from all taint of traffic in what under the law is defined as 'intoxicating liquors.'"

The December Conference

Pending the decision on Mr. Lynn's resolutions an important conference was held at Washington, D. C., of considerable interest to your committee. During the first week of December, representatives of the Internal Revenue Bureau met with manufacturers of barbers' supplies, perfume, toilet water, liquid medicinals and flavoring extracts for a consideration of some of the problems connected with the preparation of the regulations for the enforcement of the Prohibition Act. Federal Prohibition Commissioner John F. Kramer, and Deputy Commissioner Gaylord had charge of the hearing while the technical and scientific matters were ably handled by Dr. Adams, Chief of the Division of Technology of the Internal Revenue Bureau. The hearing having greatest interest to your committee was that relating to liquid medicinal preparations, held on December 3. All branches of the drug interests were represented.

Dr. Adams on behalf of the Department gave out a list containing twenty-three U. S. P. and N. F. preparations which it was believed might possibly be used for beverage purposes. The list was submitted, not as the final decision of the Department but as the basis for discussion and recommendation of those at interest. Dr. J. M. Francis, who had been selected as the spokesman for Manufacturing Pharmacy, very ably represented this Association at the hearing. Among other things he pointed out that alcohol is absolutely necessary in the manufacture of medicinal preparations; that the preparations official in the U. S. P. and N. F. are the development of many years of scientific study and experiment and that the menstrua have in this way been carefully determined. None of these official preparations contain more alcohol than is necessary and the same in a large measure may be said in reference to non-official preparations listed by reputable manufacturers. As showing the attitude of Manufacturing Pharmacists and their perfect willingness to co-operate in the enforcement of this law, Dr. Francis pointed out certain official preparations on the list submitted by the Department which manufacturing pharmacists would be satisfied to drop from their list of manufacture.

The list of official preparations submitted by the Department was taken up in greater detail at a meeting held in the afternoon by the Scientific and Technical Representatives of various organizations in attendance at the hearing. The resolutions then adopted and submitted to the Department on the following day have been published in various journals and since the whole situation has been crystallized

and the regulations subsequently issued by the department it is not considered necessary in this report to give those resolutions in detail. It is a matter of interest, however, to note that the resolutions drawn up by the representatives of the Drug interests in some instances went much further in their restrictions upon certain preparations than has been done in the regulations which were subsequently issued by the Department. It may be said that it is fortunate for the interests of legitimate medicine that the technical matters connected with these requiremens were under the direction of Dr. Adams, who plainly demonstrated a clear knowledge of the problems facing the manufacturers of alcoholic medicinal preparations and who made it clear by his actions that no arbitrary course was contemplated.

In view of a thorough exposition of the co-operative purpose of this association at these hearings, it was felt by the executive committee that resolutions declaring the attitude of the associations in general terms were no longer demanded by the situation and it was decided to abandon the idea of presenting them.

Regulations 60 were published in due time and it is found to class as intoxicating liquor eighteen of the twenty-three preparations considered in the conference referred to. Sufficient time has not elapsed to permit of a critical report upon the practical workings of these regulations. The law is new, new machinery must be installed to put it into operation, and in many instances new men called into the service. Some of the provisions are found very cumbersome by the manufacturer or dealer already over-worked in the matter of forms, records and reports; and many seem to see a growing reaction against the enforcement of the Act itself, aside from the attacks which are being made through various court procedures. Manufacturing Pharmacy, however, is concerned in the requirements of the Law and Regulations as they stand, without speculating upon the happenings of the future.

The Future of Alcoholic Medicinals

The members of this association are not unprepared for restrictions placed upon the manufacture of medicinal preparations by the operation of Prohibition laws. This subject was discussed at the very organization of the association in 1912 and our proceedings show that it has received attention at various subsequent meetings and particularly at that of a year ago. Nevertheless new conditions are confronting us and it is the hope of the committee that discussions at the coming meeting of the association will take serious thought of the

effect upon our industries of new conditions under which we must operate. Already the process of elimination of even preparations official in the U. S. P. and N. F. has begun, against the protest of many who are interested in professional pharmacy. It is true that the preparations affected, with several exceptions, may be spared without very serious injury to pharmacy or the public; but it is possible that other official preparations may be added to the list which are classified as intoxicating liquors. Attention should not be wholly centered upon official preparations, but thought should be given to the status of non-official preparations which are being listed by all manufacturers and which have been sold by them without question for so many years that a continuance of this practice is likely to be taken for granted. In the opinion of the Committee, this association should take the initiative in carefully scrutinizing the formulae of alcoholic medicinal preparations, now marketed for strictly legitimate purposes, to discover whether any of these may be perverted to improper use. Also it is not sufficient to know that these preparations have not been made, or marketed for such use. The demand from the trade should be given consideration and orders for unusual quantities under suspicious circumstances should be refused. The whole subject is one of such vital importance, and so far reaching in its effect that in the opinion of the committee it may only be fully developed by open and frank discussion on the part of members assembled at the annual meeting.

At this time the Committee wishes to recommend the desirability of some action by the association through the appointment of a committee, or otherwise to further the approval of a number of formulae for specially denatured alcohol for the manufacture of pharmaceutical products for internal use, as is now permitted in the case of Tincture of Iodine.

DR. S. R. LIGHT, CHAIRMAN.

Discussion on the Floor

DR. FRANCIS: My understanding is that there is no necessity for our giving ourselves any uneasiness in the matter of applying for permits to manufacture anything except special orders until such time as we receive formal notification from the officers of the government to make such application; in other words, we are supposed to be operating under permits obtained last year.

Permits

I happen to know that the Department is so congested that if all the manufacturing houses that come under the provisions of this law should immediately file applications for the permits required, they would not have storage room for the documents, so they thought of the very sensible plan of intimating to the trade at large that we were to sit still and operate under former conditions until we receive notice that our new application should be filed. I know that is the idea on which our firm is operating at the present time. I have about 17 pages of typewritten matter with the necessary labels all ready for filing.

The "Five Gallon" Regulation

I would like to know if the Chairman of the Committee has any definite information from any government officer bearing on the sale of alcoholic preparations which come under the designation or classification of beverages? The Commissioner, in issuing this bulletin, has already specified quite a number of national formulary and U. S. P. products, such as aromatic elixir, as being properly classified as beverages, and being so classified, they come under the operation of special regulations. Among these, as I understand it, is a regulation to the effect that they are not to be sold by manufacturers who do not possess retail licenses and cannot be sold in a quantity of less than, say, 5 gallons.

That brings up a practical difficulty. A manufacturer receives an order, among other things, for 1 gallon of aromatic elixir; and he has an order for 5 pints of some other elixir; the customer does not want 5 gallons and he cannot possibly consume 5 gallons. Now are we prevented from supplying this gentleman, or must we inform him that he must place an order for not less than 5 gallons, or are we allowed to make up a mixed assortment of these beverage medicinal preparations amounting to a total of 5 gallons? Aside from the action that might be taken by the manufacturing house per se, we have also the question as to what course should be followed by a branch house operating in another portion of the United States in filling such orders, assuming that the manufacturer or branch will not have retail connection?

The Medicinals Officially Termed Beverages

MR. WINDOLPH: I do not know that I can answer the Doctor's question authoritatively. It has brought up another question which, it seems to me, should be settled first. What, if any, is the differenti-

ation under the Prohibition Regulations between whiskey or other intoxicating liquors, as we have known them heretofore, and these 18 official preparations which the 18th amendment has brought into such prominence as intoxicating liquors?

Dr. Francis has made reference to the requirement of a liquor dealer's license. Is it necessary for manufacturers to pay a special tax as a wholesale liquor dealer in order to handle these 18 preparations of the U. S. P. or N. F.? I think there have been some bulletins issued to the effect that these preparations may be handled without incurring this tax; reference being specifically made to retail transactions. The regulations plainly state that the retailer selling an intoxicating liquor as such must pay the special tax as a retail liquor dealer and at the same time they classify these particular preparations as intoxicating liquors. Now where does the differentiation come in? Are we permitted or are retailers permitted to sell these without paying that tax? If so are these 18 preparations also relieved from other restrictions imposed on intoxicating liquors?

It may be that the 5 gallon quantity may be made up of an assortment not requiring the sale of 5 gallons of one specific preparation to make a wholesale transaction.

DR. FRANCIS: Your firm, I presume, has not taken out a license as a wholesale liquor dealer or a retail liquor dealer?

MR. WINDOLPH: No sir.

DR. FRANCIS: You do manufacture such preparations as are placed in this list by the Commissioners as being alcoholic beverages, such as aromatic elixir?

MR. WINDOLPH: We have manufactured them.

DR. FRANCIS: If I, as a retail druggist, should send you an order, would it have to be for as much as 5 gallons of aromatic elixir, to obtain a pint, if I wanted it, or would I be forced to order as much as 5 gallons of the specific items in that list? Has any official ruling to that effect been published?

DR. LIGHT: I think I can answer that; Regulations No. 60 distinctly provide that the 18 preparations are intoxicating liquors, and that answers Mr. Windolph's question as to how they differentiate them from whisky. They do not differentiate them; they are subject to the same regulations as any other intoxicating liquors; therefore if you want to sell them in any quantity, you must have a license as a liquor dealer. As to whether you can make up an assortment for a wholesaler or not, I do not know that any ruling has been made.

THE PRESIDENT: Unless you have a license, you have no right to sell.

MR. BERINGER: As I understand the matter from discussion with the Department, the situation is this; the pharmacist who wants to dispense distilled spirits or wine per se on prescription is rated as a retail liquor dealer; he must qualify as such and pay the retail license. That permits him to sell on physicians' prescriptions only, and there is a special formal report which he must make out before the 5th of each month covering such sales, and this specifies alcohol, whiskey, brandy, etc., and he must specify the number of prescriptions and the total amount he has dispensed during the month, of those articles. These other galenical preparations enumerated in Regulations No. 60 are not mentioned in the same category as distilled spirits and wines and alcohol but as "medicinal preparations fit for beverage use."

There is a new form which will be put in force the coming month, on which all the manufacturers holding permits as manufacturers must specify the amount of alcohol used in the manufacture of U. S. P. or N. F. medicinal preparations, and there is likewise space for stating the amount used for manufacturing medicinal preparations fit for beverage use, evidently intending to cover the items so specified in Regulation 60.

The thought of our local authorities is that the pharmacist, to buy these from a manufacturer or from another pharmacist, must buy them on a permit the same as he buys his alcohol or distilled spirits approved by the Collector or Prohibition Officer of the District, so there is going to be no interference with the exchange of these products, as I understand the Regulations, the same as we would buy alcohol or other distilled spirits, but being fit for beverages, they have got to be bought on permits the same as you would buy other articles fit for beverage use.

A question which arose in my discussion of the matter recently was the attitude of the Department on tincture of ginger. It is not in this special class as fit for beverage purposes, but way in the back of Regulation 60, there is a provision that there can be sold to the consumer tincture of ginger in 1 or 2 ounce quantities, but if he has occasion to buy larger quantities, he must get a permit for such purchase.

The question comes up, what are we going to do with the hospitals that want to buy tincture of ginger? The Department regulation is

not clear and we may have to require that a permit be obtained the same as for these other preparations.

MR. WINDOLPH: I think the subject centers around Section 100 which requires special tax as retail or wholesale liquor dealer in the sale of intoxicating liquor unless otherwise expressly exempted. Certain paragraphs of this section provide express exemption but more refer to these 18 preparations except paragraph c, which reads:

"Alcoholic medicinal preparations or other alcoholic compounds which are fit for use as beverages, may not be lawfully manufactured or sold unless specifically authorized in these regulations, but if they are legally manufactured and sold, a special tax liability as rectifier and liquor dealer is incurred."

These 18 preparations are specifically authorized in these Regulations, and it is held that for that reason they may be sold without the special tax liability, although it seems to me the language is not clear and specific.

This particular paragraph refers to the tax liability, and it is plain that if these preparations are not manufactured in strict accordance with the Regulations, that the manufacturer incurs the special tax liability both as a rectifier and as a liquor dealer. On the other hand does he simply incur tax liability as a liquor dealer and not as a rectifier also if he sells these specific preparations in the lawful manner to permit holders?

The "18 Preparations" and Tax Liability

MR. WATERBURY: Mr. Windolph has just answered the question I had in mind, that is, the authorized use of intoxicating liquors or preparations which are fit for beverage purposes but which are of recognized therapeutic value, do not require the retail liquor dealer's stamp. In fact, preparations which formerly required that tax stamp cannot be made under the Regulations today, all permits having been cancelled at the time the Volstead Act went into effect.

The 18 preparations listed were specifically authorized and can be made and sold without incurring special tax liability. They must, however, as Mr. Baringer has pointed out, be sold on permit in the same manner as distilled spirits and wine. The special retail stamp applies to distilled spirits and wines. That is an old tax or part of the Revised Statutes today, and in drawing up the Volstead Act they were very careful to keep in force all former statutes covering the manufacture and sale of liquor so that they could assert all the penalties and collect all the taxes that were due in the past. That is the reason that retail liquor dealers' tax stamp is kept in force today.

However, the unlawful sale of any preparations fit for beverage purposes does incur liability as a retail liquor dealer, including a thousand dollars fine and rectifiers' penalties and everything else provided for violation of the Prohibition Law. They had a very distinct purpose in putting that clause into the law. The authorized use and sale is fully protected and does not incur special tax liability, the special tax applying to selling and dealing in distilled spirits and wine only. That is the way the law reads.

A MEMBER: Is it your understanding that that applies also to the wholesale liquor dealer's license?

MR. WATERBURY: Yes, the wholesaler can trade in those things without incurring liability as a wholesale liquor dealer so long as he does not handle alcohol or distilled spirits or wine. The tax liability is not incurred unless you sell it for beverage purposes. The answer Mr. Caffrey gave us with reference to that paragraph was that they had no authority to assert the tax and the maker or seller of any preparation required the retail liquor dealer's stamp could not obtain a permit for its manufacture.

A MEMBER: Within your knowledge, is there any other differentiation between liquor as we have heretofore known it and these 18 preparations?

MR. WATERBURY: So far as their sale after they are made is concerned, there is not. The record and order form are required just the same; the only differentiation is in tax liability, and that comes under an entirely different law and has nothing to do with the Prohibition Law at all; it comes under the old statute.

Sales of Less Than Five Gallons

DR. FRANCIS: I want to know whether the manufacturer has the right to sell less than 5 gallons of any one of these 18 specified preparations which have been pronounced beverages to a retailer who has a license to purchase such preparations?

MR. WATERBURY: Yes, he can through a registered pharmacist. The law says that all sales in retail quantities shall be made through a registered pharmacist. Less than 5 gallons is a retail quantity. You can make up an assortment of 5 gallons of several of these preparations. There is a specific ruling to that effect. The same rule applies to branch houses. There must be a registered pharmacist at each branch.

MR. DE YOUNG: Would each branch house need a retail liquor dealer's license?

MR. WATERBURY: Not a retail liquor dealer's license. If you are selling whiskey and wine or alcohol, you will, but for these preparations, no, you do not need a retail liquor dealer's license at all, but the sale of them would have to be made through a registered pharmacist.

MR. DE YOUNG: Would absolute alcohol?

MR. WATERBURY: Absolute alcohol is subject to the same laws and regulations as apply to any other pure grain alcohol for non-beverage purposes and special tax for its sale is required.

A MEMBER: What do you mean by sale through a registered pharmacist?

MR. WATERBURY: I do not know what they mean exactly, except that a registered pharmacist in the employ of the manufacturer must approve the order. As a matter of fact, the way it was put to us was simply to have the registered pharmacist O. K. these orders. They know that your good faith is behind the transaction, but the point was they want to protect themselves against unscrupulous concerns trading in this kind of business. They can keep track of the registered pharmacist where they could not of any other man; that is their whole purpose.

A MEMBER: If the branch house did not have a registered pharmacist in its employ, could not the shipment be made from the manufacturer who had the registered pharmacist?

MR. WATERBURY: Yes.

THE PRESIDENT: As long as the transaction occurred at the point where the registered pharmacist was located.

MR. WINDOLPH: Article 1 of the Regulations defining intoxicating liquor, say "this definition includes all preparations listed in Article 11 as being fit for use as beverages or for intoxicating beverage purposes," so that naturally classifies these 18 preparations as intoxicating liquors, and Article 11 so regards them.

Now here in section 69, paragraph d, it says plainly that retail druggists and pharmacists selling intoxicating liquors as such must pay special tax as liquor dealers. According to the definition in Article 1, and Article 11, aromatic elixir is an intoxicating liquor, and as such, all dealers whether selling on a physician's prescription or otherwise, are required to pay a special tax as liquor dealers under

the Internal Revenue Laws, and keep special tax stamps as such, conspicuously posted.

MR. WATERBURY: Has that been rescinded? I doubt if there was any authority in the tax laws to place the tax on those preparations, because these people are not dealers in distilled spirits. That tax applies to dealers in distilled spirits and wines, and the dealer in alcohol has paid that tax before they were made.

MR. WINDOLPH: That differentiates then between the 18 articles listed and distilled spirits.

A MEMBER: I might report that in every instance where we have brought this question up at the Internal Revenue Department, it has been ruled that we must have a retail liquor dealer's license for a quantity less than 5 gallons.

MR. WATERBURY: That was due to the ignorance of the collectors in those cases. There is a good deal of confusion about it, but you can see when the Revenue Law of 1918 carries a one thousand dollar penalty for the unlawful sale of intoxicating liquor in any state or municipality, how unfair the retail stamp tax is when that is regarded as evidence of an unlawful sale in some states; they had to fall down on that stand, otherwise they would have druggists paying a thousand dollars tax in a good many states now, and they did not intend to assert that penalty.

MR. FINNERAN: In connection with a quantity of less than 5 gallons, there might be times when the retailer might not need 5 gallons or 5 pints. Some solution of the problem was sought and so they worked out the solution that one registered pharmacist might supply another registered pharmacist, each of them having a permit on a regular purchase order. As far as the sale is concerned per se, we must have a liquor dealer's license, but we can use them in combination which are ultimately unfit for beverage purposes just the same as we use brandy, alcohol or anything else. That is a ruling from the department.

A MEMBER: That is antagonistic to what Mr. Waterbury told us.

MR. FINNERAN: You only have the registered pharmacist doing the same as every other registered pharmacist does.

A MEMBER: But you claim they may not sell aromatic elixir without incurring tax liability the same as a retail liquor dealer?

MR. FINNERAN: Oh no, without a permit.

A MEMBER: Is it necessary for the retail pharmacist, in connection with the manufacturing plant, to have a permit aside from the permit issued to the manufacturing plant.

MR. WATERBURY: Oh no; he operates under your permit and you stand back of him.

A MEMBER: I understood Mr. Finneran to say that it was legal for one registered pharmacist to sell to another.

MR. WATERBURY: That is a retailing proposition, not a manufacturing proposition.

MR. WHITE: The majority of the manufacturers have met the situation in the manner suggested by our worthy Chairman this morning, by the process of elimination. And I would like to ask Mr. Finneran, as a retail druggist, to what extent it would inconvenience the retail trade, if the manufacturers should make that action universal? Will every druggist have alcohol in stock so that he can make these preparations for himself.

MR. FINNERAN: I should think that the retailers would be very thankful to have you throw them all out, because they would be forced to make them. I think some of the gentlemen are a little mixed on the retail liquor dealer's license and the permit. There is not any retail liquor dealer's license or wholesale liquor dealer's license required in the sale of either large or small quantities, as I understand, no license is required as between permit holders.

A MEMBER: In the sale by the manufacturer, of these 18 preparations in less than 5-gallon quantities, and in the sale by one pharmacist to another pharmacist, is the application to purchase necessary?

MR. FINNERAN: Yes sir.

Danger of Asking Questions of Department

DR. W. J. SHEFFLIN: Our representative in Washington, Mr. Crounse, has advised us to read the law and interpret it for ourselves; realize that it was not meant to restrict the drug trade, that it was meant to prohibit the illicit liquor trade, but to be very careful not to put up any questions to the Department, because, in the first place, they are not in a position to give authoritative answers, and in the second place they are absolutely sure to give an answer that will protect them, no matter whether it interferes with you or not. And in most of these cases that is a very wise policy to pursue; as long as you try to follow out the law as it is plainly written, it is perfectly feasible to go ahead and do business, but the moment you imagine

things and put hypothetical questions or even direct questions, you are apt to invite trouble. Get the best information you can on the law, but do not try to get an authoritative statement from officials or subordinates in Washington, because you are pretty sure to get a narrow construction and one that will not militate to the advantage of the trade.

As I understand it, there are two distinct articles affected by the law, liquors and medicinal preparations that could be used as beverages. In the case of liquors, manufacturers, wholesalers and retailers have to have a liquor dealer's license. In the case of the other things, they have to have permits. Now evidently it is feasible and lawful for a manufacturer, if he has a pharmacist who has a permit in his employ, to have the orders for smaller quantities go through that pharmacist. I should think it would be perfectly feasible and legal for a manufacturer who had an agent in another city and no pharmacist in his employ, to make arrangements with the nearest pharmacist to O. K. the sales of the small amounts that are called for, if there are such called for. It is just my idea that that would be perfectly feasible and legal; however, that is a thing to find out from your own legal advisers.

Popular Education Needed

A MEMBER: There is one point that has to do with the future perhaps more than the immediate present, and that is the tendency that the blacklisting of these 18 Pharmacopeial and National Formulary preparations may lead to. This may be only the beginning of a longer list, and if a certain impression that is gaining ground in the public mind is not thwarted in some way by education, it is bound to grow. I refer to the idea in the public mind that alcohol per se is a dangerous element.

On every hand I hear people speak of this preparation or the other containing this, that or the other percentage of alcohol, as though alcohol was there solely for the purpose of a beverage, no matter what medicine it may be compounded with. That, of course, is an unintelligent view, as we all know, but nevertheless, it is growing in the public mind. I was talking with a distiller the other day, and he happened to mention a certain so-called patent medicine, mentioning that it contained so much alcohol. I said, "Yes, it does, but the alcohol is there for a scientific and not an unscrupulous purpose."

We had a very excellent paper yesterday on educational advertising and I think one of the subjects that we might well take up in

an educational campaign is the use of alcohol, its proper use as a solvent in medicinal preparations. The idea that alcohol is used not only to extract the active principles of drugs, but to exclude those that are not medicinal and are not wanted in the final product—that is a subject that I feel we must sometimes give our attention to, and the sooner the better. I do not think the subject would be well rounded out if something were not said on that subject at the present time.



A PHARMACOPOEIAL HISTORY

**Report of Prof. John Uri Lloyd at the Ninth Annual Meeting
of the American Drug Manufacturers Association**

At the Sixth Annual Meeting, the Scientific Section, then the Committee on Standards and Deterioration, was instructed to compile a genesis of the pharmacopoeial preparations and the work of compilation was intrusted to Prof. John Uri Lloyd. The following report of the progress of the work was made by Professor Lloyd at the Ninth Annual Meeting.

DR. LLOYD: Mr. Chairman. I deem myself fortunate in having an introduction by Dr. Francis, so intelligently put as to make it almost needless for me to say anything other than, as Dr. Francis has intimated, to offer some suggestions regarding my views as to what should now be done with this publication. It is proper, however, that I should make a review of the problem, for it is a problem, bringing to your minds the story of the publication that is to be.

Unique Character of This Work

There are standard works, pharmacographies, to which all scholars refer when they propose to study the history or the qualities of plants that come from India and the neighboring countries of the Orient. Most important among these are Dymock's *Pharmacographia Indica*, and Waring's *Pharmacopoeia of India*. We have also a more elaborate volume by Flückiger and Hanbury, the title of which is *Pharmacographia*, only. This is not restricted to the Orient, but takes in the important drugs of the old world, though I regret to say that it mentions few of the medicinal plants of America. We have, indeed, nothing in the direction of a publication like this, that touches American drugs or their official pharmaceutical preparations, aside from the Dispensatories and works on *Materia Medica*. These are in themselves invaluable, but are necessarily restricted in scope, and are insufficient to enable one concerned in the study of a drug, to trace it from its introduction to the present time.

The Lloyd-Flückiger Undertaking

You will remember that about two decades ago, Prof. Flückiger made a visit to America, where he was the guest of Dr. Squibb. He had corresponded with me, and had arranged to visit Cincinnati, where he proposed, in the Lloyd Library, to study Americana, with a view to the publication of a work of the nature of the one we have now undertaken. Owing to a very hot spell of weather that summer,

he was forced to abandon this trip, which as he was an old man, he could not then venture to make. I accordingly selected from the Lloyd Library a large number of books on the subject in hand, and forwarded them to him, care of Dr. Squibb. I also went to New York to confer with him, stopping with Dr. Fr. Hoffmann. We then formulated a plan to prepare a "Pharmacography of American Drugs," Prof. Flückiger to take the responsibility of the chemistry, the microscopy and like phases of the work, and I to write the histories and records in pharmacy and medicine. This arrangement having been made, Dr. Flückiger returned to Europe, and we at once began the work. I wrote up several drugs,—I cannot now recall their number, but I do recall that Tobacco, American Manna, and a few others were completed by me, and forwarded to Dr. Flückiger. Unfortunately, the work was suspended, owing to the death of Flückiger before he had well begun his portion. The documents of Flückiger, after his death, came into the possession of Dr. Edward Schar, of Berne, Switzerland, who published some of my contributions, one at least of which was republished in this country, in the *Journal of Pharmacy*.

Difficulties of the Task

Owing to this previous experience, it will be perceived that when the proposition was made to me to take up the subject of the histories of the Pharmacopeial drugs, I became, naturally, enthusiastic, even though very few American drugs were involved in the study.

This leads me to remark that I was not present when our Society decided to undertake and publish this history of the Pharmacopeial drugs and preparations, making a record of each from its beginning, for the benefit not only of our Society, but as I accept, for all others interested in Pharmacopeial drugs and preparations. Inasmuch as the Lloyd Library has all the publications necessary to accomplish this study, and I am pretty well acquainted with that Library, I was asked if I would undertake this work. I accepted, and was then asked to select assistants.

Now believe me, gentlemen, to establish the record of even one drug, is a work in itself. To handle discriminatingly and select from 40,000 volumes and 80,000 magazines (more or less), and record the history of *all* the Pharmacopeial drugs, was a mighty problem. I apprehended no trouble, however, in the line of the crude drugs and botanical products employed in medicine, because of my familiarity with authorities and publications bearing on these problems. But I

believed myself inadequate as concerns the records of European preparations, such as had drifted down from times gone by, as well as such recent problems as vaccines and serums. Besides, the task as a whole, heavy even for a young man, time free, was altogether too great for one burdened with both cares and years. This argument your Committee did not resist. Indeed, they had already decided to this effect.

Collaboration of Messrs. Waldbott and Heyroth

Under my suggestions, arrangements were accordingly made with Dr. Sigmund Waldbott, Chemist of the Ohio Mechanics' Institute, Cincinnati, than whom I know no one better qualified to assume this responsibility. Like Dr. Charles Rice, he can read almost any language, and he is thoroughly versed in chemistry and general science. As his assistant he selected Prof. Francis Heyroth, then Chemist of the Dental College, Cincinnati. At this time Dr. Heyroth had but two half days in the Dental College, and agreed to devote the remainder of his time to this work. We at once began, the program being as follows:

I was to take the crude vegetable drugs of the last revision of the Pharmacopeia of the United States, giving their histories, but leaving out all preparations therefrom, as well as their chemical constituents, pharmaceutical preparations, etc., which was to be the part of Dr. Waldbott and Dr. Heyroth. The first year's work began most promisingly, but was soon interrupted, on the part of Drs. Waldbott and Heyroth, by America's entrance into the world's war. I was fortunately able to go on with my portion of the work, and completed the history of the drugs, not only those named in the last Revision of the Pharmacopeia, but of the next preceding Revision, which, more optimistic in its scope, included many important drugs dropped from the last Revision. At the end of that year I was ready to publish Volume I, which I believed should be published, in itself.

For more reasons than one I wanted this accomplished, but I believe one reason will suffice, to wit: With the record of Flückiger in mind, and my age as a text, I desired to get the work out while I was yet living. It was decided, however,—perhaps I was responsible for that decision, as the work was then progressing rapidly,—that we should wait until the whole publication could be offered, complete, in one volume, Part I and Part II.

Now listen, gentlemen: Just after our entrance into the war, I went to the meeting of the American Pharmaceutical Association in

Chicago. While there, I received a telegram stating that the work of Drs. Waldbott and Heyroth had been interrupted, owing to Government necessities in the line of chemistry. Saying nothing to anyone as concerns my purpose, I at once returned to Cincinnati. I lost that meeting, but I succeeded in making an arrangement by which Dr. Waldbott and Dr. Heyroth were permitted to continue this work, giving to it all the spare time they could.

The difficulties increased. The Ohio Mechanics' Institute was filled with soldiers, demanding the care of Dr. Waldbott, to the exclusion almost of everything else. Dr. Heyroth likewise had to labor under disadvantages unmentionable. He had at his command for this work *only two days each week, two hours each day*, and such evenings as he found available. Through the duration of the war, the work on our publication was thus practically suspended, but they are now putting in every spare moment of their time on our publication, and the first of October, we believe, their part will be ready. As already stated, my part was long since finished, and I have the manuscript for Part I, complete, with me here.

My suggestion is that, inasmuch as the task of our Committee is practically completed, you now relieve our Committee from further responsibility, appoint a Committee on Publication, and at once issue my part of this work, as Volume I. In this I assure that our Chairman, Dr. Dohme, will agree. He, too, has accomplished his task, and should be relieved from further responsibility. It was with the purpose of making to him, personally, this suggestion, that I brought with me the manuscript of Part I, but in Dr. Dohme's unavoidable absence, I placed the problem in the hands of Dr. Francis, Acting Chairman of Dr. Dohme's section, who has graciously acquiesced in my views.

As a partial summary of the problem now before us, I would say that a publication of this description can embody only a small part of what the workers have accomplished. Search of a hundred volumes may be required to find a single sentence that, when found, lies intact in a volume on the table before us. The work before Mrs. Waldbott and Heyroth has, practically, no limit. They have now accomplished the main portion of their task. Their work is *revising, assorting*, cutting out or adding to, as necessity compels, as they restudy, to perfect this work as a finality. Of the excellence of my own work, I cannot speak as confidently as of theirs. May I not congratulate our Society on the opportunity they have, of presenting to the world the

work that Dr. Waldbott and Dr. Heyroth are accomplishing, in which I greatly pride myself that I have had a part, and that the Lloyd Library had also had its share?

I have taken much time, Mr. Chairman. I thank our members for listening to me, and in closing I repeat my suggestive request that, if the Society approves, a Committee on Publication be appointed, which shall at once issue my part of this work as Volume L, and shall, when the remaining copy is placed in their hands, decide as to whether it shall appear in one, or more than one volume. (Applause.)



PATENT AND TRADEMARK REFORMS

**As Discussed at the Ninth Annual Meeting of
the American Drug Manufacturers Association**

Report of Committee on Patents and Trademarks

I feel that some apology is due for the incompleteness of this report but it is prepared at the eleventh hour, and as the chairmanship of this committee passed from my hands during the past year, I have not given the close attention to the literature and reports of the year 1919 that the subject deserves.

It is fair to assume, however, that the usual critical reports have been presented by the several organizations that have indulged this habit so regularly during the last fifteen years; and it is safe to conclude also that much of such criticism is destructive rather than constructive, and that many recommendations are based upon narrow views and tintured, to some extent, by partisanship. It is a matter of congratulation, however, that some organizations have approached this tremendous subject in a much more liberal spirit and with the sole idea of making constructive suggestions calculated to strengthen, build up and fortify a patent system which is the admiration of the civilized world.

Report of the National Research Council

I am going to omit reference to minor issues and turn at once to a splendid report of this kind which is the finest example of well-considered, constructive criticism which has appeared in print for years, and which goes to the very heart of the matter of those reforms which are most necessary at the present time. I refer to the report of the —“patent committee of the National Research Council” and I shall take the privilege of excerpting this report, giving you the specific recommendations of the committee; and I sincerely hope that this association will not neglect the opportunity to pass a formal resolution most heartily endorsing the recommendations of the Patent Committee of the National Research Council, and furthermore, that proper official notice of this action on our part shall be duly transmitted to the members of the National Congress.

In 1917, the Commissioner of Patents, with the approval of the Secretary of the Interior, requested the National Research Council to appoint a committee to investigate the Patent Office and patent system, with a view to increasing its effectiveness and to consider what might be done to make the Patent Office more of a national

institution and more vitally useful to the industrial life of the country. In due time, this special committee was appointed and it is worth bearing in mind that every one of them were men of large experience and also of national reputation in their special lines of activity. These were Dr. Wm. F. Durand, Dr. L. H. Baekeland, and M. I. Pupin, scientists and inventors; Drs. R. A. Millikan and S. W. Stratton, scientists; Dr. Reid Hunt, physician; and Messrs. F. P. Fish, Thomas Ewing and E. J. Prindle, patent lawyers. Mr. Ewing at one time served as Commissioner of Patents.

Single Court of Appeals

The first recommendation is: The establishment of a single Court of Appeals that will have jurisdiction of appeals in patent cases from all the United States courts throughout the country, in place of the nine independent Circuit Courts of Appeal in which appellate jurisdiction is now vested.

This recommendation also provides a suggestion for a court of seven members to sit in Washington, with a Chief Justice appointed for life by the President. The other judges are to be selected by the Chief Justice of the United States Supreme Court from the various District and Circuit Judges throughout the land and each is to sit on the Court of Patent Appeals for a period of six years, or longer, if reappointed.

If you will bear with me for imposing upon your patience, I just want to give you an idea how these nine courts of appeal works out. We have a court of appeals in the District of New York; some one of you gentlemen obtains a patent; in due course of time this patent is, according to your views, infringed by some one else; you, living in this particular division, and you take the matter into court and you obtain a decision perhaps in your favor; the decision of that particular court of the district of New York is worth absolutely nothing in the District of Cincinnati or in the District of New Orleans, except insofar as a decision of this particular court may serve as a precedent and have some influence upon the judge of the other district; in other words, having spent your time and money fighting the question out in the District of New York, you may have to fight that battle in all the other nine districts of the United States. This is utterly ridiculous. There is no Supreme Court of Appeals to which this matter can be taken for final decision; therefore, these gentlemen very properly say, "Give us a general court of appeals where a decision, once had, is in force throughout the entire territory of the United States.

Patent Office Should Be Separate Department

The second recommendation is: That the Patent Office be made a separate institution, independent of the Interior or any other department.

You will recall that the Patent Office was originally a subdivision of the State Department, but on the formation of the Interior Department in 1849, it was made a bureau of the latter and has so remained ever since. The committee states that it believes that to make the Patent Office an independent bureau would greatly increase the respect of the public and Congress and the courts for it, and would make it easier to procure enlarged appropriations and better salaries than under present conditions.

There was a time when the patent bureau was an apparently insignificant institution. At the present time, it deals with questions of enormous import to the country, and is worthy of being something more than a bureau constituting part of the Interior Department.

We find here that we are dependent upon the decision or advice of a \$2,500.00 man when you may have five, ten, fifteen or twenty million dollar investments involved. You would not submit to any such thing in any other branch of business, and it is not advisable here.

Increased Staff Needed

The third recommendation is: That there should be a substantial increase in the staff and salaries of the Patent Office.

The committee states what is generally known—that the number of patent applications and other work presented to the department is continually increasing, while the examining force for many years has been insufficiently large and has not been increased proportionately. The remuneration is so small that 25% of the examining force has resigned within the past three years. While examiners are passing upon questions often involving millions of dollars, it should be remembered that they cannot be at their best in this vitally important work unless their salaries are large enough for them to live comfortably and without strain. Money is often invested on the strength of patents, only to find later that the patent is upset in the courts, because the Patent Office search did not go far enough to discover that the invention had already been disclosed in some earlier patent or publication.

More Adequate Damages for Complainants

The fourth recommendation is: That the law be amended to provide, that as damages to the complainant, the court, on due proceedings had, may adjudge and decree to the owner payment of a reasonable royalty or other form of general damages.

Compulsory Registration of Trademarks

I don't feel that my duty to this association would be adequately discharged if I did not direct to your consideration the need, or at least the advisability, of more careful and systematic action on the part of the members of this association in seeking to establish valid trademarks. The haphazard plan generally pursued at present, of consulting several pages of tabulated names that may have been printed from time to time, or of depending upon the use of a label bearing the name or device, to establish a common law right, is productive of endless annoyance, more or less monetary loss, and to say the least, is hardly in keeping with modern business methods. What the businessmen of this country need most desperately in connection with trademarks, is the enactment of national legislation which will force registration (within a reasonable time limit) in the Patent Office at Washington, of every trademark now in use. The reason for demanding *forced* registration is primarily to get a complete list on record where it could be consulted and *to get it quickly*. It would be well to put teeth in the regulation by incorporating a clause which would invalidate any trademark which was not registered within a reasonable time limit.

Having cleared up the field, so to speak, by this registration of trademarks already in force, the second and logical step would be to require that every one desiring to use any trademark, name or device, should present it for registration at the Patent Office, paying a small and reasonable fee, such as would permit of proper search or criticism by an expert, thus giving some assurance of its acceptability.

Now in the meantime, I believe that our membership should do all that is possible to avoid confusion and that is, that in every instance where a new word is coined or a new device, label or other trademark is to be adopted, that we should not only search all of the available data that may be collected in the haphazard way which prevails now, but that the label, word, device or design should be submitted for the criticism of a recognized expert in trademarks; also

that the Patent Office files should be searched, and that finally, the trademark should be registered in the Patent Office. This need not consume very much time nor any very great amount of expense—and it certainly would save many heartaches and the destruction of many thousands of labels.

If our association thinks well of the proposition made above concerning legislation for forced registration of all trademarks now in force, it might be well to pass a resolution to this effect.

I wonder how many of you gentlemen have experience enough to depend on your own judgment to establish a trademark? You get out something that you consider meritorious or expect to make your fortune on. You decide that you will coin a name or a new device, exercising your own ingenuity. You finally get something that appeals to you strongly. Then, you wonder if some one else has adopted this coined name, and after pawing around over all the available records, you find a list that might have been issued by the Pharmaceutical Association or a drug journal three or four or five years ago. You run down the list, you don't find it there, and then you say, "I am safe." You write to the secretary of our association and ask for the registration of this coined name, and our secretary looks over the data at his disposal and does not find that you are transgressing any one's registration, and so notifies you; you next get up your carton and label and print 50,000 labels and cartons and indulge in a campaign of advertising to establish your trademark on the market, and spend \$15,000 or \$20,000. Then you receive a notice from some house you never heard of before to the effect that they regret exceedingly that you have adopted a name that they have been using for 15 years.

What is your remedy? You can pay them, or you can put all your advertising in the waste basket and go through the same procedure again. Some of you gentlemen have gone through that procedure already, and some of you will go through it again in the next five years. It is not businesslike. It may be news to you to know that there is nowhere in the United States at the present time a complete record of trademark names or devices, not one. The U. S. Government from time to time issues a list of registered trademarks, but how about those that are not registered? Nobody makes a complete compilation of those.

Resolution on Compulsory Registration

In response to the report of the Committee on Patents and Trade-marks, the following resolution was offered by the executive committee:

WHEREAS, The establishment of a common law right to a trademark by mere use without requiring a registration that gives due notice of the owner's rights to other parties is productive of endless confusion, litigation, and monetary loss, therefore,

Be It Resolved, That the American Drug Manufacturers' Association hereby recommends the enactment of national legislation which will force registration (within a reasonable time limit) in the Patent Office at Washington of every trademark hereafter adopted.

At the conclusion of the following discussion a motion was duly seconded and carried to refer this resolution to the Executive Committee with the spirit approved.

Discussion on Preceding Resolution

DR. FRANCIS: I do not think this resolution sufficiently covers the ground. It asks for legislation which will force the registration of trademarks adopted hereafter. That is only half the subject.

Registration All Trademarks Necessary?

It is exceedingly important that there be, for ready reference, a complete list of all trademarks now in common use throughout the United States and the preliminary step is to get a registration at the Patent Office of all trademarks now in use. Under this resolution we would still be left in doubt as to whether or not a contemplated trademark were already in use. The question is where can we get that information quickly and efficiently, unless we force a registration of the trademarks now employed.

Registration All Trademarks and Litigation

THE PRESIDENT: If it were possible to include in the resolution the expression that all trademarks now in use should be filed at Washington, perhaps it would be satisfactory, but if you attempt to force the registration of all trademarks now in use, you will create an appalling crop of litigation, and that is what has troubled the Executive Committee. It does not seem practicable at this time, therefore, to adopt a resolution requesting the registration of all trademarks now in use.

MR. LYNN: I think the question arises simply in connection with the meaning we give to the word registration. I think we are all of one mind, in that we believe it would be an excellent thing if all trademarks in use could be listed with the Patent Office in Washington, that is, a record made somewhere of all trademarks in use now, so that when a firm wishes to adopt a new trademark, there would be some definite place to make a search, and having made that search, you could then adopt the mark under consideration, with reasonable assurance that you would not find, in the course of a year or two, that you had unwittingly adopted a mark so near like another mark already in use on the same class of goods as to cause confusion. I think that is where our difference arises, simply in the meaning Dr. Francis intended in the use of the word "registration."

I agree with the thought Dr. Francis has in mind. There ought to be some provision for the listing of all marks now in use, so that we would have that information available to those who seek to adopt new marks, and then, I think, as this resolution contemplates, there should be a time after which no mark could be adopted and secured to a man unless he registered it in the U. S. Patent Office in the regular way.

Registration Would Not Grant Property Rights

MR. MASON: I am afraid we are barking up the wrong tree. My understanding is that a trademark can be registered in Washington if it conforms to the fundamental requirements of a trademark, whether or not the same thing has been registered once or five thousand times before. A patent will not be granted until the patent office has examined all the files and found that the patent infringes no other patent. The registration of a trademark gives you no priority at all, it gives you no monopoly of any kind; it simply registers the fact that on a certain day and hour you were using that trademark. Of what use is it, therefore, to submit all these trademarks for registration hoping you are going to gain a monopoly? You will gain nothing of the kind.

I doubt very much whether you can force people by law to register names and marks they are using. The Patent Office in this respect simply says, "If you want to register your name and mark here, we shall be glad to register them." The Act of Registration confers no rights at all; it confers no monopoly. To attempt to pass a law to force people to register their marks is entirely beside the question.

DR. FRANCIS: It seems to me that the speakers have failed to see this thing in a broad enough light. I have in mind that we might have enough importance in the eyes of the people to set in motion action which might become cumulative through the co-operation of other institutions like ours. We are asking for legislative action. It is nonsense to say that the U. S. Congress has not the power to pass laws which will absolutely force the registration of trademarks or patents, either.

Mr. Mason says that trademark registration grants you no privileges. I want to bring about a state of affairs, by legislative action, that will absolutely change that situation and put a trademark on the same basis as the registration and acceptance of a patent. That cannot be done by us, but it can be done by the Congress of the United States.

You refer to the lawsuits that might arise and how this can be prevented. I am not a congressman, but I assume that if we call the attention of these men to the necessity of such reform, that they might work out some such scheme as the establishment of a board of expert referees to whom this question could be referred, and they could determine the question of priority. It does no good to say that if this is done it will result in a lot of lawsuits, because the lawsuits do not come this year, they will come in the next 50 to 100 years if this abominable system continues.

PRESIDENT STOFER: We have an able patent attorney with us, and I will ask Mr. Bradford to speak on this subject.

Compulsory Registration Impractical

MR. BRADFORD: This is a great question. I hardly know from what angle to consider it. The present trademark statute is undoubtedly faulty. I think almost everyone in the business world who has to do with trademarks has recognized this for a long time. The legal profession, and I think the courts as well, recognize that our present trademark statute is not what it ought to be. Nevertheless, a trademark is what the name signifies, a mark used in trade, and it becomes a trademark because of use and only after its use is sufficient to identify the origin of the product on which it is used.

Mr. Mason suggested that a mark might be registered many times. That is true if it is applied to different products. Products are classified under the present statute in the Patent Office, and one may register the same name for one product that another has registered for another

product, because there is no competition between those products in trade.

Just what this resolution contemplates I do not know. It seems to me that it is broad and comprehensive in its significance. I doubt if any statute could be drawn which would carry out the idea of this resolution in a practical way.

Registration "Common Law" Trademarks

I believe that the trademark statute ought to be amended to permit the registration of what are commonly termed "common law" trademarks; that is, names which are not registerable under the present statute because they are descriptive either of the product itself or its constituents, or the use to which it is intended to be put. Such names, because of long use, become just as valuable to the manufacturer and it is of just as much importance to him that his exclusive right in the mark be recognized, as of so-called "technical" trademarks. Nevertheless, under the present statute, one cannot register a name that is descriptive, or a name that is personal in its character, unless it was used 10 years prior to the enactment of the present trademark statute, February 20, 1905. There have been a number of personal name trademarks registered as trademarks under that provision of the statute known as the 10-year provision, of personal names. Take the case of David's, for inks, which was involved in litigation that went to the Supreme Court of the United States, and in which case the Supreme Court held that clause of the Statute constitutional and that a registration under that clause to be fully as effective as registration of a technical mark.

If 10 years' use prior to February 20, 1905, is sufficient to establish a right to register, I should think and have always contended that 10 years' use at any time should establish the right to register with all the privileges that belong to registration. The fundamental right to a trademark has been recognized from time immemorial, both by the courts of this country and of Great Britain, as established by use, whether you register or do not register, and when a name comes to signify in the trade that the product was made by Parke, Davis & Co., or Eli Lilly & Co., or any other concern, I do not think any law could be passed which would divest those concerns of their right to the use of that name and their right to the exclusive use of it for a particular product, whether registered or not. I do not believe such a proposal would be constitutional. It might be. The Supreme Court has been

in the habit, in recent years, of holding most anything constitutional that Congress sees fit to pass, but it does seem to me that after a concern has used a mark for many years and that mark has become recognized everywhere as identifying its product, that the courts will certainly recognize the right of that concern to the exclusive use of that mark for that product, regardless of whether it is registered or not.

The great evil as it seems to me, has been in the fact that concerns could not register trademarks because of technical provisions in the present statute which are ridiculous as I believe, and those faults ought to be remedied by amendments. I would like to see this Association and other Associations join in a movement to give us a sensible, reasonable trademark law, something that this country has never had. We ought to have, among other provisions, something like they have in Canada, the right to register a mark as a general trademark, so that the registration of that mark becomes vested in the concern registering it for any use they see fit to put it to, so long as the mark is new in the commerce of that country. There are many names and trademarks as you know, that are used for various things; there are "Star" shirts and "Star" various other things. There could be no right acquittal by any concern to appropriate the name "Star" for any particular thing except something that it has not been used for before. On the other hand, take the name "Mazda" for incandescent lamps; there is a trademark that was coined, was never known before and never used before by anyone for any purpose. The courts have recognized a much broader right in the use of that mark and have restrained the use of the name for products widely different from incandescent lamps because of the fact that "Mazda" in itself has come to be recognized in the trade as defining the products of the concern that first used it.

But, as I said in the beginning, it is a great question and a most interesting one, and one that should be well considered. I doubt if any law such as proposed by this resolution could ever be secured from Congress, but I do believe that it would be advisable for the trade organizations of the country to combine in a propaganda having for its purpose the revision of the present trademark statute to eliminate many of its present faults and make it more workable and more valuable for the trade interests of the country.

DR. FRANCIS: In your estimation would it be possible for Congress to enact legislation which would force the registration or the

making up of a list officially in the Patent Office, of all trademarks now in use in the United States?

MR. BRADFORD: I doubt it very much. It would be illegal and impracticable.

Difficulties of Avoiding Infringements

MR. LYNN: That is our difficulty and that is just what we are seeking to arrive at, some listing that will let us know the marks that are in common use. You have all had such experiences as our own house in selecting a name.

After having made a careful search of all records available and finding no name similar, and after the product had been out for a year or two, we discovered a little concern doing perhaps an interstate business, but within a restricted territory, that was using the same name, and had used it for several years preceding our own. Of course, we had to recognize their prior right and I wrote them a letter telling them we wanted to do whatever was right. They came back with a very nice letter and said they were not particularly interested in the name and if we would pay them \$25, they would be very glad to give it up. I sent them a check, of course, and that closed it.

Now, suppose they had not been willing to step out of our way—our goods all over the country would have had to be called back and we would have had to make a fresh start. That is what we are trying to avoid. We would like to be able, when we are about to adopt a new name for our product, to be able to go somewhere and look up the record and see for ourselves that the name is not in use and know that we can go ahead and begin an intensive campaign as quickly as we feel like it, and feel reasonably sure there is no interference.

Abandonment of Trademarks

MR. BRADFORD: No doubt we would all like to regulate all evils and overcome all difficulties by legislation if it were possible. Congress has made a lot of effort along this line, and in most instances had made a mess of it, and I believe that any effort along this proposal would fail to meet expectations.

Take Mr. Lynn's case. Suppose this proposed law had been on a statute book, search had failed to disclose prior use of the name, and they had gone ahead. What could we do? Take it away from them? I do not believe any court would permit that. They would have a vested right in the use of that name, even though it is local.

You cannot avoid such conditions. And then take other conditions that frequently arise. One of our registrations was rejected on an old trademark used years ago—we ran that down and found he had not used that mark for many years, and on making this showing to the Patent Office our registration was granted.

A trademark becomes a trademark by reason of use; when you cease to use it, it is no longer your trademark. You have got to use it continually to maintain your trademark rights; when you once abandon the use of the mark, it passes into the public domain and anyone of your competitors may then take that name and adopt it for their use. There are many cases where applications to register are rejected on those old trademarks, and on investigation it is found that the marks have not been in use for a long time. A showing which will satisfy the Patent Office of that fact will secure our registration, notwithstanding such old registrations. The second registration has as much force and effect as if the first mark had never been registered or used.

Something was said about trademark rights overlapping. Now the Supreme Court has held, in the Hanover Milling Case, that the right to use the same mark may become vested in one concern in one section of the country and in another concern in another section of the country, for identically the same product, where the trade of the two concerns does not overlap and there is no conflict. That, of course, refers to common law marks, not trademarks registered under the United States Statutes.

Resolution on N. R. C. Recommendations

On recommendation of the Committee on Patents and Trade-marks the following resolution was adopted:

WHEREAS the Committee appointed by the National Research Council has investigated the patent office and patent system with a view to increasing their effectiveness and to consider what might be done to make the patent office more of a national institution and more vitally useful to the industrial life of the country, and

WHEREAS said Committee made the following recommendations:

First: That there be established a single Court of Patent Appeals which will have jurisdiction of appeals in patent cases in all of the United States District Courts throughout the country—in place of the nine independent Circuit Courts of Appeal in which appellate jurisdiction is now vested.

Second: That the patent office be made in some proper and feasible way an independent bureau—thus greatly increasing the

respect in which it would be held by the public, by Congress and the Courts, and which would make it easier to procure enlarged appropriations and better salaries than under present conditions, in which it is a bureau of the "Interior Department."

Third: That there be a substantial increase both in the force and also in the salaries of the patent office, as it is obvious that the force at present employed is utterly incapable of coping with the immense amount of business involved, and it is also obvious that only men of high abilities, drawing commensurate salaries, are fitted to pass upon questions which often involve millions of dollars; and it is an undisputed fact that very large sums of money are often invested on the strength of patents only to find later that this is to be upset in the Courts because patent office investigations were not sufficiently thorough.

Fourth: That the law be amended to provide that, as damages to the complainant, the court, on due proceedings had, may adjudge and decree to the owner payment of a reasonable royalty or other form of general damages.

And

WHEREAS, Said Committee has given generously of its time and energies to the careful consideration of these problems, therefore, be it

Resolved, That it is the sense of the American Drug Manufacturers Association in annual meeting assembled that this Association extend its thanks to the Committee and to the National Research Council for this excellent service, and be it further

Resolved, That the American Drug Manufacturers Association, in heartily approve of the suggestions offered by said Committee, and be it further

Resolved, That the American Drug Manufacturers Association, in annual convention assembled, believes that the enactment into law by the Congress of the United States of "Nolan" Bill, H. R. No. 11, 984, for the relief of the Patent Office, should be urged as a measure greatly needed to improve the efficiency and service of this important Bureau of the Government; and that we request our members to present to their Senators and Representatives in Congress the merits of this measure and the need of the relief which it proposes, to the end that the individual and collective influence of this Association and its membership may be given in behalf of said measure.

THE RETURN OF UNSALABLE GOODS

A Discussion at the Ninth Annual Meeting of
the American Drug Manufacturers Association

Mr. A. C. Higgins of E. R. Squibb & Sons opened the discussion with the following paper:

The liberal exchange privilege adopted by manufacturers during the pre-war days when they were all anxious to find a market for their goods has proved a veritable boomerang and has been abused until a remedy must be found in these days of high production and marketing costs.

Like all reform movements the tendency is to make the change in policy too radical and this must be considered in order to keep the good will of the dealer. Unquestionably, however, a start can be made which will eventually result in direct benefit to all concerned if the manufacturer is protected and more careful buying on the part of the dealer encouraged.

Owing to the increased cost of marketing products effected by the Federal Narcotic Law, these items can safely be placed in the Non-Returnable class and goods damaged by fire or water should be treated in the same manner, as a well-established rule in this respect would place the problem in the hands of the insurance companies where it belongs.

The practice of deducting cash discount from all credit memorandums has caused much discussion, but in view of the privileges extended to the buyer on original invoices, this seems to be in order.

At the present time most manufacturers restrict return of unsalable goods to original packages in good condition, but this means a heavy loss to them inasmuch as no provision is made for refinishing or retesting when necessary and in view of restricted production, at the present time it seems that a charge should be made for this work.

Since the close of the war there has been a decided increase in the amount of goods returned and it is evident that unfair advantage is being taken of the privilege to return goods for credit at original invoice price. In view of this fact some manufacturers have been forced to change their policy and the following is quoted from the current price list of E. R. Squibb & Sons:

"We cannot assume responsibility for deterioration of goods resulting from improper storage or from age, such changes being due to influences beyond our control; and we cannot accept for credit goods

that have been dropped from our trade list. However, we will, whenever possible, accept for credit any of our products on which the original seal and label are intact, if a list of the products be submitted to us before their return, for instructions as to disposition, provided such goods are returned for credit within one year from date of purchase. Biologicals are an exception to this rule. Any such shipments must be delivered f. o. b. Brooklyn, N. Y., and must be accompanied by the invoice and an order for goods (other than ether, chloroform, fluid-extract ergot or liquid petrolatum) of at least equivalent value."

Exceptions to the above rule are, of course, made when any product marketed under the Squibb Label is found unsatisfactory, due to and directly traceable to the method of manufacturing or in the event goods are shipped in error to a customer.

It is doubtful if the cost of bringing pharmaceuticals back to the laboratory and marketing them again has ever been figured out with any degree of satisfaction, but the subject is of vital importance to all manufacturers and is open for discussion.

At the conclusion of Mr. Higgins' paper the following discussion took place.

Returns Within Reasonable Time

DR. FRANCIS: There are two or three pertinent inquiries I would like to make which will serve as a basis for the specific discussion of specific problems. At the present time there is perhaps a variation in custom among different manufacturers regarding returned goods otherwise than the biologicals Mr. Higgins referred to, allowing the privilege of returning packages provided they are in the original sealed containers and within a reasonable time. Now that term "reasonable time" is very indefinite.

MR. JOHNSON: Within one year.

DR. FRANCIS: It would appeal to me very strongly, if the manufacturers in this industry would adopt the practice of notifying the trade that no package could be returned for credit or replacement unless it was returned within one year from date of shipment, and with the further proviso that it was within the original sealed package. But I fear there are few firms represented here today that have the backbone to put in force any such policy. In many instances manufacturers will allow the return of unopened packages that have been in the hands of the retailer or the jobber for 5 or 6 or perhaps 10 or 12 years. It is a matter of policy and nothing else.

The Customer's Good Will

If I am a manufacturer and a man writes to me saying that he has a certain line of goods that he wishes to return, or perhaps he has already made the shipment, and by an examination of the returned goods I find that their shipment with him dates back 10 or 12 or 15 years and, of course, obviously they have deteriorated, at first I am inclined to remind him of the fact that my responsibility has ceased. He has had those goods on his shelves all those years and they have undergone a natural decomposition; but then I say to myself, "This man is a good customer; every year he represents a good profit to me; I want his good will"; I may perhaps know that he is not amenable to reason, and if I write him a plain, commonsense letter, and say, "You left the goods on your shelves and they have deteriorated until they are practically worthless," I am going to get a letter back "To hell with you; I will buy from somebody else."

The man could not do that unless my competitors in the same line were going to offer him the terms he wants, and that shows the lack of a uniform system in dealing with returned goods. That is not an overdrawn statement. I can cite an invoice less than 30 days old where a man has, without writing, took it upon himself to return a shipment of goods consisting of fluid extracts and tinctures, and, by the way, not a single item on the list is dated back less than 15 years. That man expects credit, not for the recoverable alcohol, but for the value of the goods as originally purchased, and perhaps on the basis of new prices.

What sort of policy is going to be exercised by pharmaceutical manufacturers covering the matter of returned goods?

Evil of Overstocking Dealer

In many instances, it is the exercise of poor judgment in purchasing on the part of the customer, in the first instance. Of course, we say to our representatives "Sell goods, sell goods," but goods are only valuable to the manufacturer when they stay sold. In many instances we are doing an injustice to ourselves and to the drug trade at large when we allow a man to overbuy. We always pay the price.

Unreturned Deteriorated Goods Injure Maker

MR. DUNNING: There is the problem of the injury one might be doing his own business by letting deteriorated goods remain in the stock of the man to whom they have been sold, because if they are

physically saleable he might sell them and do an injury to the manufacturer if the drug was ineffective or unsatisfactory for the purpose intended.

Manufacturers' Errors Causing Returns

MR. CURRENS: In speaking on this subject, I can only speak from the standpoint of the branch. We have gone along at times on the old theory that the customer is always right, and have found out in a great many cases that he was wrong, and we have been governed accordingly.

In some isolated instances, in trying to reduce this evil, we have found that our branch is a good place at which to start. We make errors in the filling of orders, even in the checking of them and even in the packing of them. This is one place where we have started to try to reduce this trouble.

In treating this subject from the standpoint of the New York branch, we have found that our greatest trouble comes from local conditions; in other words, the drug business in this particular locality is, in the majority of cases, in the hands of a class of people who do like to return stuff if it has gone down a few cents after they have bought it. Outside of the metropolitan centers, the returned goods proposition does not seem to be such a glaring evil. In treating this problem, we have been guided, as Dr. Francis states, almost wholly by policy, i. e., whether the man will quit us if we do not recognize his pleas for the return of the goods.

Debiting Salesmen for Returns

MR. SAILER: It seems to me that the control of the evil lies partially in our own hands. The greatest amount of returned goods that we have to contend with is from the wholesale druggist, and it is remarkable to contrast one wholesale druggist with another. We have several accounts that practically never make returns. On the other hand, we have a wholesale druggist who is constantly wanting to return a lot of goods. I have in mind one of the largest wholesalers in the State of New York, to whom it is no trouble to sell a big bill of goods. But just as sure as we sell him, within 6 months we will get back at least 35 per cent of them. He just packs them up and returns them. Sixty days after that, you can sell him three times that amount, and in another 6 months he returns them. That abuse is due principally to careless buying and incompetent help. It seems to me that most of us have a particular salesman who is in charge of each

jobber's account and receives credit for business done with that particular account, and if it is impressed on him with sufficient force that it will not be worth while for him to come into the office and say, "Look at my sales, see what they totaled up, I ought to have more money," it would tend to cure the trouble.

A MEMBER: Don't you debit him by the returns?

MR. SAILER: Some of us do and some do not. I fear he is going to run up his sales because he has the confidence of that particular customer who trusts him to go into his stockroom and make up a large order, and we ship the goods and a few months later they come back. If you deduct from that man's record of sales all the goods returned from his customers, you will perhaps reduce very materially the amount of returned goods.



REPORT OF THE TARIFF COMMITTEE

**At the Ninth Annual Meeting of the
American Drug Manufacturers Association**

Your Chairman, Mr. Herbert H. Dow, was not able to hold a meeting of the Committee during the year, primarily because his home location is a long distance from a convenient central meeting place.

The Longworth Bill was a tariff measure that had an important bearing on such drugs and pharmaceuticals as are also intermediates in the manufacture of dyes, such as salicylates, benzoates, etc. This Bill provided for increased duties on these products, and at first it was a question whether the American Drug Manufacturers Association was favorable to these increased duties or not, but definite action was taken by the Executive Committee of the Association on December 5, 1919, and a resolution was passed endorsing the Bill, which at that time had already passed the House and was under consideration by the Senate.

Your Chairman made a trip to Washington and had a long interview with Senator Penrose, and others, on October 25, 1919, and it became apparent that the Bill, in the form in which it had left the House, was objected to by prominent Senators on the ground that extreme favoritism might result from the licensing feature contained therein. This view was also entertained by one of the members of your Tariff Committee.

A few days ago the Senate reported a substitute for the Longworth Bill which, to some extent, avoids the objections to the House Bill, and its provisions have been acquiesced in by Congressman Longworth, author of the Bill, and also by Congressman Fordney, chairman of the Ways and Means Committee. This latter bill, if passed by the Senate, and the President's signature secured, will become a law; and the President has expressed himself as favorable to a bill of this kind.

Very strenuous efforts were made by the Manufacturing Chemists' Association and the American Dyes Institute to get this Bill passed, and it is a source of gratification that the American Drug Manufacturers' Association has expressed itself as being in harmony with the efforts of these two other organizations that to some extent have interests in common with it.

Your chairman also went to Washington on February 10th to assist in preventing the importation of a large number of chemicals from Germany which, under the terms of the Peace Treaty, can be brought in if the United States so elects. Eighty-five per cent of the

products mentioned in this list of chemicals are proprietary medicines unknown to your chairman, and only Cinchona products of standard drugs were offered in fairly large amount. There was only one vote favorable to the importation of these German drugs and that was by an attorney representing the Retail Druggists' Association. No formal action can be taken by the United States Government until the Treaty of Peace is signed.



RESOLUTIONS

Adopted at the Ninth Annual Meeting of the American Drug Manufacturers Association

Under this heading will be found all the resolutions adopted at the ninth annual meeting, with the exception of two resolutions on patent matters, which are published under the heading "Patent and Trademark Reforms," and the By-Laws regulating the Scientific Section for which you are referred to the "Constitution and By-Laws" of the Association which are also printed in this volume.

Appealing Article I of the By-Laws

Resolved, That Article I of the By-Laws is hereby repealed and that the order of business of any meeting of the Association either regular or special shall be left to the discretion of the Executive Committee.

In Re Affiliation With Certain Associations

Resolved, That the Association continue its affiliation with the Chamber of Commerce of the United States of America, and the American Metric Association, and the National Drug Trade Conference.

Resolution on the Annual Proceedings

Resolved, That the annual proceedings in the future be somewhat simplified by the elimination of matter of no particular importance from the point of view of permanence; particularly should banquet speeches be ignored, and discussions, wherever possible, should be condensed.

Approving U. S. C. of C. Building Project

WHEREAS, The Chamber of Commerce of the United States has launched the project of erecting a permanent and suitable building for American Business at Washington, D. C., and

WHEREAS, The American Drug Manufacturers' Association recognize the Chamber of Commerce of the United States as the proper agency to effect and maintain a thorough understanding between the various departments of the government and the commercial and industrial interests of the country, and,

WHEREAS, It is essential to the economic life of the nation that such agency shall function effectively and the erection of such building makes for the permanency and effectiveness of said organization;

Now, Therefore, Be It Resolved, By the American Drug Manufacturers' Association, that said movement and plan of the Chamber of Commerce of the United States be and the same hereby is fully approved and endorsed and the members of the association are urged to cordially and generously assist in the said movement by giving it their financial support.

Resolution Discharging War Service Committee

WHEREAS, The practical termination of the war has removed the necessity for the War Service Committee, therefore, be it

Resolved, That in accordance with the committee's recommendation, the Association hereby honorably discharges the Committee with an expression of the deepest gratitude for the immeasurable help it rendered the industry during that time of need.

Resolution on National Research Council

Resolved, That the American Drug Manufacturers' Association hereby expresses its pleasure at the reorganization and continued activity of the National Research Council and that it heartily commends the splendid program of scientific investigation which the Council has developed and pledges its whole-hearted support in furthering these matters.

Resolution on Incorporation

Resolved, That the American Drug Manufacturers' Association hereby instructs its legal counsel to take immediate steps toward the incorporation of the association by ascertaining the law of a state or the Federal government under which, in his judgment, the association should be incorporated and reporting back to the Executive Committee, and be it further

Resolved, That the Executive Committee is hereby authorized to incorporate the Association by any procedure and under any law that is in accordance with its best judgment.

Resolution on U. S. P. Synopsis

Be It Resolved, That inasmuch as it seems that the greater part of the work on "The Historic Record of Drugs, Chemicals and Pharmaceutical Preparations of the U. S. P." has been concluded and that inasmuch as the publication of such data in proper form will involve the expenditure of an appreciable sum of money;

1. That the matter be referred again to the Executive Committee for review and decision as to what further steps shall be taken to insure the early publication of this work.
2. That it would be advisable that any committee heretofore appointed in connection with this work be discharged, and that a Committee on Publication be appointed to vigorously prosecute the issuing of the proposed work in printed form.
3. That any committees now in existence be instructed to forward to the Executive Committee all records and data they may have relating to this work.



WOOD ALCOHOL AND PROHIBITION

Address at the Ninth Annual Meeting of the
American Drug Manufacturers Association

CHAS. BASKERVILLE, Ph.D., F.C.S.

Wood (methyl) alcohol poisoning is an unique problem in that it involves not alone physiological changes and technical matters having to do with production and distribution of the toxic agent, but sociological factors as well, for it is closely knit to prohibition.

Early Views of Wood Alcohol

The "adiophorous" spirit obtained by distilling wood (Boyle, 1661) was thought by Taylor (1812) to be a new kind of *ether*, in fact, he called it "pyroligneous aether." Dumas and Peliget (1835) established its resemblance to ethyl (*ether*) alcohol and named it methyl alcohol from the Greek $\mu\epsilon\theta\eta$ mead; $\lambda\eta$ wood. In fact, you will recall that the word alcohol, derived from the Arabic, Al Kohl, at one time meant a fine powder and only later meant spirits.

Methods of Production

Commercially the destructive distillation of hard woods (refuse) is the main practical method followed for the production of methyl alcohol in America, although in Europe it has been obtained from peat and as a by-product from vinasse and in the manufacture of wood pulp by a soluble sulphite process. The numerous synthetic methods known at present are too costly to be practised on a commercial scale. The condensed tarry and acid products distilled from wood are subjected to partial purification by distillation at these plants. This crude material, about 80 per cent pure, is then usually shipped to centrally located refineries in tank cars, drums, or barrels for further purification and rectification.

Physical Character of Wood Alcohol

This crude wood alcohol, "Wood Spirit," "wood naptha," a vile-smelling, greenish-yellow to dark brown in appearance, nauseous liquid, is a complex mixture containing a variety of impurities, unnecessary to enumerate here. They are removed in the main in the first refining, yielding a product containing about 95 per cent methyl hydroxide. In 1896 processes for greater refinement were put into operation, so that about 1906 a deodorized product (97 to nearly 100 per cent) was placed upon the market in the United States under such names as "Columbian Spirits," "Eagle Spirits," "Hastings Spirits," "Colonial

Spirits," "Manhattan Spirits," "Union Spirits," and "Lion d'or"; in Canada as "Greenwood Spirits" and "Standard Wood Spirits"; and in Germany in 1912 as "pro spirit." Technically it was called methyl hydrate, carbinol, methylic alcohol, methyl hydroxide, and methanol. The pure substance is a colorless, mobile liquid, having a pure vinous odor, similar to that of pure ethyl alcohol, and possesses a burning taste.

Legitimate Uses of Wood Alcohol

The legitimate uses of methyl alcohol may be grouped as follows:

A—For denaturing ethyl alcohol.

B—In the chemical industries, (1) as a solvent (fats, varnishes, moving picture films, etc.); (2) as an extraction agent (explosives); (3) as raw material for production of formaldehyde; (4) in synthetic chemistry for introduction of the methyl (CH₃) group (perfumes, flavors, dyes, etc.); (5) as a reagent in the laboratory.

C—In pharmaceutical and medicinal preparations (surgical dressings, cattle medicines, etc.).

D—In the arts and crafts (manufacture of incandescent mantles, of hats, furniture, pianos, burial caskets, boots, shoes, etc.).

E—Unclassified (fuel, illuminant, cleaning fluid, etc.).

The abuses of methyl alcohol will be referred to below.

Evil Results of Unfortunate Name

No doubt the stress laid upon the matter of nomenclature appears quite trivial; however, there are reasons for emphasizing this phase of the subject, each sufficient unto itself. There is a need for publicity, especially among others than chemists. These facts of names and their meanings of necessity can scarcely be known by all medical and pharmaceutical men. They are even less known to the "man-of-the-street"; but the layman does know that "alcohol" is the stuff which makes drunk come; that it is the stuff that cheers when downhearted; that uncontrolled it has been a curse in the world; that it is the "real thing" in the disguise of beer or light wine, which formerly rested him when the arduous days' work was done. So when he sees the can or vessel with the label "alcohol" on it, and as he knows "alcohol" is the thing that gives the "kick," rest, or cheer, without considering the qualifying words "wood," "methyl," or what not, he is going to take it. He is little deterred by the "poison" label, for he has seen the

picture of the snake curling out of the bottle in the pictures of intemperance, and still he drank. Therefore, it shall be the purpose of some influential chemists and powers in the transmission of chemical terms in the English language to see that the word Alcohol ceases its present significant use, at least in chemical literature. Technically all alcohols should become known as "-ol" bodies or hydroxides, as "methanol," "ethanol," "propanol," "Butanol," etc.; methyl hydroxide, ethyl hydroxide, propyl hydroxide, etc. This movement is already well under way, as producers of ninety per cent of the refined methyl hydroxide in this country have decided that hereafter all packages containing it shall be labelled "methanol," and so their advertisements read in the trade journals this day.

Propaganda to Change Name

This change in nomenclature has been recognized, but the usage cannot be brought about instantaneously and will require time. The word will continue as a synonym in any event, although through concerted action it may become more or less obsolete. No form of legislation can eliminate the name. This is an appeal to chemists and druggists to assist.

Tax Free Industrial Alcohol

In 1906, after a vigorous campaign in which many of us chemists participated, the United States followed England, France, Germany and other European countries by enacting laws permitting the general use of a tax-free domestic alcohol for industrial purposes, and for light, heat and power.* Such a step was essential that we might keep pace with other countries in the industrial development necessary in the commercial competition of the world. A discussion of the economics of this "example of intelligent and far-seeing fiscal legislation" would be somewhat pertinent, but I fear lead us a little too far afield. Suffice it to say that it has made us a self-contained nation in regard to certain medicinals; ether, ethyl chloride, chloral hydrate, nitrous ether, and numerous synthetics may be mentioned in illustration. To emasculate alcohol, as it were, the law requires that tax-free alcohol for use in the arts and industries shall have first mixed with it (under close supervision) substances which "destroy its character as a beverage or render it unfit for liquid medicinal purposes." To fulfill the intent of the law and to carry into effect the provisions of the act, the conditions and regulations are made by the Commissioner of Internal

*Act of Congress, June 7, 1906; amended March 2, 1907; Act, October 3, 1913.

Revenue with the approval of the Secretary of the Treasury. On account of its poisonous properties, difficulty of removal from the resulting industrial alcohol, non-interference with many of the industrial purposes for which the denatured product was intended, and a desire to avoid the destruction of the methyl alcohol business, for methyl alcohol was cheap at that time, the first act designated it as a denaturant and the Commissioner of Internal Revenue selected it as the principal one.

Up to date some forty-one formulas for "specially denatured alcohol," to be used for designated purposes only, have been authorized under the several acts. Five formulas for "completely denatured alcohol," which may be used for light, heat and power, have been authorized. One of each of these has been revoked.

The control of the former class (special) is so complete, involving, as it does, the moral character of the users, that little danger attends its use. One formula (No. 30) allows the addition of as much as 10 per cent of the purest methyl hydroxide, but its use is restricted to general chemical and physical laboratory purposes. (a)

The latter class (complete denatured) promises some needed relief for the liquid fuel shortage and may consume much the largest portion of denatured alcohol. That means denatured alcohol will become even more common than it is now.

Wood Alcohol as an Adulterant

Data collected prior to 1918 indicated that the drinking of liquids containing methyl hydroxide was responsible for many deaths and acute cases of blindness. The "deodorized" methanol resembles pure ethanol so closely that the ordinary layman can hardly distinguish the difference between the two. In complex mixtures, whiskey, etc., its detection involves very careful chemical analysis. Formerly it cost less than ethanol, so unscrupulous people were tempted to use it as substitute for ethanol in adulterating whiskey, essences, extracts, bitters, washes, liniments, balsams, perfumes, etc. The victims were generally those who indulged in the commoner forms of whiskey, rum, and wine, although persons not addicted to the use of intoxicating drinks were undoubtedly often innocently affected from drinking Jamaica ginger, lemon extract, essences, bitters, medicines, etc., whose chief menstruum was "deodorized" wood alcohol. At one time the poorer negroes in the Southwest drank it under the name of "white

(a) In England these two classes are designated "Mineralized" and "Industrial Methylated Spirit."

horse" or "old mule." The price at which it sells now will reduce that danger to a minimum.

Happily the abuses grew less through the operation of the National Pure Food and Drugs Act of June, 1906. However, during the penumbra of prohibition many cases of blindness and death occurred, as stated in other papers, through the drinking of wood alcohol and denatured alcohol.

Abuse of "Formula No. 1"

The "completely denatured alcohol" is the more readily obtainable. Formula No. 1 called for 10 per cent of specified commercial methyl alcohol with one-half of one per cent of approved benzine. This has been, and is, used in radiator water of motor vehicles to make a non-freezing mixture. This may account in part for the cases traced to garages. After the outbreak referred to, this formula was revoked December 29th, last, appearing in orders issued January 8, 1920. Hereafter no completely denatured alcohol containing more than 2 per cent methanol will be allowed. As alcohol of strengths above 80 per cent require dilution before drinking, it is doubtful if any future acute cases may be attributed to denatured alcohol, that is, after the present outstanding stocks under Formula No. 1 are used up.

Nauseous Denaturants Ineffective

However, we cannot be so hopeful in regard to chronic cases accumulating in blindness or defective vision which may be attributed to drinking diluted denatured alcohol containing methanol. The denaturing deterrents are selected primarily on account of the nauseous odor and repulsive taste, rather than physiological action. These odors and tastes repel some people as do the fragrant emanations of a pigpen, or the seductive waters of a sulphur spring, yet other people accustom themselves to the atmosphere of the piggery; still others through medical advice pay big money to drink sulphur waters. "Rot gut" whiskies and some "mountain dew" are not far behind varieties of denatured alcohol in odor and taste. With added flavoring, denatured alcohol containing 2 per cent of methanol may be diluted until it contains 1 per cent or less methyl hydroxide and be drunk. Death is not to be expected, immediate nor early blindness, from such a draught. And therein lies the danger, so apparent to all who are familiar with the cumulative action of drugs and the insidious influence of liquor.

Popular Recognition of "ol" Bodies as Drugs Needed

Proper doses of paraldehyde produce effects associated with ethyl alcohol. I have heard, but it has not been authoritatively supported, that not a little paraldehyde was shipped to Russia from another country (not United States) to serve as a substitute for vodka. We are familiar with the historic accounts of ether sprees indulged in by the Irish and "Picadilly Willies" and recent medical literature tells of the successful use of oil-ether cocktails prior to dressings of seriously wounded soldiers. So a variety of intoxicants and exhilarating soporifics are actually available, but their names and associations are those of *drugs*, hence their use is not common. If we can but divorce the name and promote the recognition that these "ol" bodies are in fact drugs and dangerous, liable to produce blindness, the very element of fear alone will have a most salutary effect in protecting men and women from themselves. Undoubtedly the recent publicity given the causes of the deaths from wood alcohol in the metropolitan district has materially assisted in maintaining sobriety during the past two months. In other words, wise education of all the people can, in my opinion, prove to be the only solution of the problem.

Wild Yeasts

In this connection allow me to submit a few other thoughts in bringing my remarks to a close. Some people who talk about wood alcohol and its associated evils very nicely reply to the query, "What is it?" by saying, "It is obtained from wood." When asked the source of the "other" alcohol, the alcohol of beverages, tinctures, medicines, etc., they reply that it is a product of fermentation. I need scarcely to remind you of the fact that methyl hydroxide is a product of fermentation also, especially if the *bacillus caproicus*, or certain wild yeasts, be present when the juice of sugar cane is fermented. It or ethyl formate is a normal constituent of rum.

In the fermentation of sugary or starchy materials for the production of "grain" alcohol the utmost care must be exercised to guard against these wild yeasts. Certain of these wild yeasts may be domesticated, as it were, and caused to bring about their own specific transformation in these carbohydrates to produce special bodies. For example, by birth control of yeasts these self-same carbohydrates have

been made to produce acetone and butyl alcohol from the same raw materials from which "grain" alcohol was made **

These liquids proved to be of immense value in the manufacture of high explosives during the war and may serve as one of the valuable initial products in the production of the synthetic rubber of the future.

One of the products of normal fermentation is amyl alcohol. In the distillation of beers and wines to produce distilled liquors, as whiskey, brandy, and gin, this amyl alcohol is concentrated, being then called "fusel oil." The purpose of the process of rectification in the manufacture of the better grades of distilled liquors and ethyl alcohol was, and is, to eliminate, or reduce the content of this "fusel oil," the alleged primary cause of the old, and somewhat reminiscently familiar, *Katzenjammer*.

"Grain" Alcohol Indefinite Term

"Grain" alcohol has long since ceased to be a definitive term. When rectified, it is ethyl hydroxide, ethanol, the same as obtained from distillation and rectification of any saccharose or starchy material, which has undergone the quondam "alcoholic fermentation." As a sequel of President Taft's famous "What is whiskey?" definition, however, it required a decision of the highest courts to show that ethyl alcohol obtained by fermenting molasses was the same as that obtained from beer made from grain.

Ethyl alcohol, ethanol, ethyl hydroxide is prepared in quantity by fermenting, under regulated conditions, ordinary sugar (beet, cane, maple, etc.), starch (grain, potato, rice, etc.), and cellulosic material. They will not ferment when pure, but require conversion, or inversion, into fermentable substances first. I remember as a student thirty years ago, inverting, fermenting, and distilling an old night shirt, spiking a synthetic lemonade with the product obtained therefrom for a laboratory frolic.

Ethyl Alcohol From Wood

As is well known, the foundation of wood is cellulose. Paper pulp, especially book stock, is essentially cellulose. Sawdust and lum-

***Granulobacter butylicum*, presumably identical with Gruber's *Bacillus amylolactificus* I. *Granulobacter saccharobutylicum*, presumably identical with Fitz's *Bacillus butylicus*. Produces butyl alcohol from glucose and with some difficulty from maltose.

Granulobacter polymyxa, frequently found in cereal grains. Produces traces of butyl alcohol.

Fernbach's culture, produces butyl alcohol and acetone from grain and potato mashes. *B. violarius acetonicus*, produces ethyl alcohol, acetone, etc., when grown on saccharose peptone media.

ber scrap make up one of our greatest national wastes. Ethanol is a very valuable solvent, fuel, and chemical. By purifying the cellulose from these sources, inversion, fermentation, etc., some 300,000 gallons of ethyl alcohol were made per month in this country during the war. The output will no doubt be greatly increased. This was the regular alcohol of "likker" variety, made from wood, but it was not "wood" alcohol.

Propyl Alcohol

Recently propyl alcohol, propyl hydroxide, propanol, has been made on a semi-commercial scale from petroleum products. It is an excellent solvent and acts very much like ethanol in stimulating and bringing on those conditions in animals we associate with the influence of liquor.

Complexity of Wood Alcohol Problem

I mention these facts because, in my opinion, they serve to show the complexity of the problem and the need for keeping our heads upon our shoulders in seeking a salutary sane solution. It has been said elsewhere by the speaker:

"Since man began handling fire he has been utilizing dangerous substances to his own good purposes. Also the chemist has discovered many substances and shown how they might be used for the benefit of mankind; he has demonstrated the value of cyanides for extracting gold; how strychnine may serve as a heart stimulant; he has proved the value of phenol as a disinfectant; and how sulphuric acid may be used in multitudinous ways. All these substances are dangerous to handle, in fact, many of the commoner reagents used in the hundreds of laboratories and factories are poisons. Were partial facts only presented, it is conceivable that they might assemble themselves in astounding array which, if not properly interpreted, would serve for a cause of impeachment of the entire chemical profession, whose daily routine is one of handling poisons of all kinds, except for the fact that the chemist is supposed to know his business as well as the substances he handles, and to take some precautions for safeguarding himself and the people working with him."

The problem of wood alcohol is not a matter of mere business; it is a matter of humanity. The problem of prohibition is a matter of humanity, but its operation should be along sane lines and not such as provokes lawlessness, of which there is a superabundance unhappily blighting our dear country this day.

Dr. Lloyd's Remarks on Prof. Baskerville's Address

DR. LLOYD: Dr. Baskerville's address appeals to me mightily, both as concerns the instruction given therein, and the suggestions made. In my opinion, this term that he has suggested, or something similar thereto, should have been applied, long ago, to methyl (wood) alcohol. When the American Pharmaceutical Association met in Chicago, years ago, when "Columbian Spirits" were for the first time brought in by Mr. Ebert, of Chicago, who also presented specimens and samples of various pharmaceutical preparations made therefrom, I was one who resisted the introduction of the suggested term, until shown what this "Columbian spirits" would do, when used internally.

The Lloyd Library has been, for a considerable time, concerned in the literature bearing upon methyl alcohol problems, legal evidence being not infrequently sought therein. One case especially comes now to my mind, in which, years ago, a man was blinded because of the presence of methyl alcohol in the varnish he was using to coat the insides of the great beer casks then in use. Judge Roberts had one side of that case, a talented opponent the other, and both were, at the same time, searching to find what the Library offered concerning the action of methyl alcohol.

At that early date I advocated that the name "alcohol" should be excluded from that material, and that the word "poisonal" or some similar term should be used instead. I believe if that term "poisonal" could then have been applied, many lives would have been saved. To the common people, the name "alcohol" means a beverage, and regardless of its chemistry, in my opinion, its use should be avoided with reference to a poison.

I wish to thank Dr. Baskerville personally for what he has brought us concerning by-products in connection with fermentation and distillation, and Mr. President, if I am in order in so doing, may I not ask that a rising vote of thanks be given Mr. Baskerville?

(The motion was seconded and adopted by a rising vote.)

PAYING OFF DISCHARGED EMPLOYEES

Some time ago one of our members asked us to ascertain what policies were pursued by the membership with respect to paying off discharged employees as well as those leaving voluntarily. Thirty-six of our fifty-five members replied to our questionnaire and the policies in vogue may be summed up this way.

Various Policies of Members

Fifteen pay off immediately on discharge or voluntary leaving.

Three modify this policy with respect to employees leaving voluntarily by only paying them off immediately if previous notice has been given of their intention. In one case, five days' notice is required; in another, three days' notice, while in the third the time is not indicated. In two of these cases employees who leave without notice are paid off on the next following pay day, while in the third such employees are not paid until the day following the next pay day. The reason for this modification of the above policy is to discourage employees from leaving without notice.

A fourth firm modifies the policy of paying off immediately by this statement, that they immediately pay off employees who leave voluntarily only if they leave with a "good reason."

The number of firms who immediately pay off discharged employees but who hold the pay of those leaving voluntarily until the next regular pay day is likewise fifteen showing that the industry is about equally divided between these two policies.

Only two firms follow the policy of holding the pay of both discharged employees and those leaving voluntarily until the next pay day. The reason assigned in these cases is "less interruption and complications for the payroll department."

Advantages of Paying Off on Pay Day

As can well be imagined from the nearly equal division between the two prevailing policies there is much to be said on both sides. It is conceded by all that paying off employees on other than regular pay days burdens the payroll department and several of those who hold the pay of employees leaving voluntarily until the next pay day do so on the ground that such an employee has no right to expect the firm to inconvenience itself to suit them although they feel that where they discharge the employee it is another matter.

Another very weighty reason advanced for pursuing this policy is that labor turnover is thereby decreased. Since three firms claim

this as their experience, this reason is, in all probability, more sound than it might seem at first blush. One member elaborates on this reason by saying that where this policy is pursued a hot-headed employee is less likely to leave on the spur of the moment because of some minor irritation that is forgotten on the morrow. In this connection a second member calls attention to the fact that there is a certain class of employees who "just get the notion to quit," and he states that it is his experience that this policy tends to keep them on the job. Another member finds that this policy tends to cause the employee to remain until the next pay day rather than to quit sooner.

Advantages of Paying Off Immediately

But those who immediately pay off employees who leave voluntarily also offer weighty reasons for their policy. Some are inspired by a spirit of equity. These feel that an employee is entitled to his pay as soon as he severs his connection and that the firm has no right to put him to the inconvenience of returning later.

But less altruistic reasons for this policy are not lacking. One member finds that holding the pay until the next regular pay day tends to make the employee irritable and more inclined to dispute the amount paid him.

Others are anxious to avoid the necessity of the employee returning to the factory for the reason that at such times they come into contact with other employees and tend to make them dissatisfied. That this is true of the discharged employee is obvious and a little thinking will demonstrate that it is also likely to be true of the employee who left voluntarily. Holding his pay naturally makes him irritable and hostile to the firm and consequently very liable to talk against its interests. Then, too, there is the human tendency to brag about his new job and how much better are his new wages and working conditions and there are many who do not hesitate to resort to a lie or two to improve the color of their stories.

What may perhaps appeal to many as an odd reason for this policy is the theory that it tends to build good will, but when one turns the idea over in his mind it appears a very substantial one. The employee whose wages are held is naturally inclined to advertise the firm as unfair or even dishonestly inclined to avoid paying its debts until it is actually compelled to and it is undoubtedly a fact that many

to whom he talks are inclined to regard the matter in the same light. It must be remembered too that employees who leave take their places as a part of the consuming public and that their good will is as essential as that of any other of the individuals who in the aggregate go to make up the public.



PERCENTAGE OF DEALERS TAKING DISCOUNT

The above title is an inquiry which was put to the Association in order to obtain as accurate information for a correspondent as possible, You may be interested in the data thus obtained and we are, therefore, quoting the excerpt of our letter which gives it.

You asked what proportion of dealers take advantage of the cash discount allowed by the members of this industry. In order to obtain as accurate information as possible, I addressed a letter to a number of our members.

Percentage of Wholesalers Taking Discount

With respect to the wholesaler, their experience seems to be the same, for all state that ninety per cent of this class discount their bills. One member makes the observation that the wholesaler's net profit is so small that it is necessary for them to take advantage of all cash discounts.

Percentage of Retailers Taking Discount

With respect to the retailers, four of these members estimate that from forty to fifty per cent of this class take advantage of the cash discount while the fifth states that they "went into this matter quite carefully a year ago and found that about seventy-five per cent of the retailers on our books discounted every month." With respect to the retailers, one member makes the following interesting observation: "We find that approximately 40 per cent of the retailers discount their bills. A point of interest in this connection is that the amount of discounting varies with the various seasons, for example, the discounters during the first six months of the year average a little over 40 per cent, but during the summer months this percentage drops down to almost 25 per cent. During the latter part of the year the percentage increases to almost 50 per cent."

Cash Discount as Credit Test

With respect to the wholesaler, this same member says: "As to wholesalers would say that practically every wholesaler on our books discounts his bills. Cash discount is a real source of profit to a jobber who has a big turn-over and the wholesaler who does not discount his bills might be considered a good subject for credit investigation."

Discounting Dealers Compared by States

One of our members has given us the following very interesting tabulation of the percentage of retailers and wholesalers who discount their bills according to geographical location. The terms of this house are "1 per cent ten days, thirty days net."

RETAIL DRUGGISTS

Percentage who discount their bills

	Per cent
New England States	40.18
New York State	41
New York City	12
Western States	42.7
Southern States	29
State of Pennsylvania.....	46.91
City of Philadelphia.....	20.66
Average	32.07

WHOLESALE DRUGGISTS

New England States	40.88
New York State	71
New York City	100
Western States	96
Southern States	40
State of Pennsylvania.....	100
City of Philadelphia.....	91
Average	76



PART II

Abstracts from Meeting of the Scientific Section

THE SCIENTIFIC SECTION DURING 1919

Report of the Chairman, Dr. A. R. L. Dohme, Read Before the Scientific Section During the Ninth Annual Meeting of the American Drug Manufacturers Association

The year behind us has been a strenuous one due to the almost continuous struggle to secure help and raw material and the situation is a little better today than it has been during the year. The lack of help made working at research work difficult and spasmodic, and the lack of raw material made actual work impossible at times and annoying at all times; however; there are some interesting results to report and I herewith submit an abstract of each subcommittee's results and work.

SUBCOMMITTEE No. 1—ACETYL SALICYLIC ACID—Dr. G. DuBois, Chairman. Good work has been done but no final report.

SUBCOMMITTEE No. 2—ACONITE—Dr. Dohme, Chairman. This work resolved itself into getting aconitine which was only possible about two months ago and the results are not yet available, although we have been working upon the subject and with every indication of getting out a method of separating aconitine from its hydrolysis products. Work upon the physiological tests are also under way.

SUBCOMMITTEE No. 3—CANNABIS—Dr. Eldred. No report.

SUBCOMMITTEE No. 4—CHLOROFORM AND ETHER—Dr. Francis—Progress. Certain specifications, tests and assays will probably be suggested by this subcommittee.

SUBCOMMITTEE No. 5—CONTROL ASSAYS—Dr. Francis. Report upon Blue Mass assay will be submitted by the chairman.

SUBCOMMITTEE No. 6—MILLED DRUGS—Mr. Penick. No report.

SUBCOMMITTEE No. 7—DIGITALIS—Dr. Pittenger. No report as yet of some deterioration experiments based on standard ouabain solution.

SUBCOMMITTEE No. 8—DILUENTS AND EXCIPIENTS—Dr. Proctor. Extensive data was secured by this committee and will doubtless be brought up by the chairman, but no report in chairman's hands.

SUBCOMMITTEE No. 9—DRUG EXTRACTS—Dr. Snyder—Has considered subjects of F. E. Ipecac, F. E. Ergot, Syrup Hyriodic Acid, S. E. Licorice (purified) half strength the fluid extracts, and F. E. Cinchona, and Dr. Snyder will doubtless report upon the same at the meeting. He further recommends many new subjects for next year. (See page 257.)

SUBCOMMITTEE NO. 10—ESSENTIAL OILS—Mr. Leonhardt and Dr. Richmond. No report.

SUBCOMMITTEE NO. 11—GLYCEROPHOSPHATES—Dr. DuBois. Propose *first*: An additional U. S. P. assay by titration of Calcium glycerophosphate; *second*: A change of ash content from "not less than 59.2%" to "not less than 58.0%"; *third*: Introduce Iron glycerophosphate into pharmacopoeia and give list of tests and requirements; full report should be read.

SUBCOMMITTEE NO. 12—LABORATORY MANAGEMENT—Dr. Kilmer. No report. Question of continuation of the subcommittee to be decided by the section.

SUBCOMMITTEE NO. 13—MALEFERN—Dr. Dohme. Raw material was unavailable until beginning of 1920 when some oleoresin came to hand and samples were sent out to the members of the subcommittee with three assay methods. We have tried these three methods of assay and also three modifications and give results herewith:

		% Crude Filicin	White	Burdick
Method I		25.7	24.96	24.90
		24.5		
Method II	(Fromme modified by Goris & Voisin)	23.5	20.38	21.94
		23.3		
Method III	(Goris & Voisin)	8.8	....	12.21
	Heavy Magnesia)	5.6		
Method IV	(Mod. of III using Milk Magnesia)	12.4	....	....
		19.2		
Method V	(Modified Method III)	20.25	....	....
		20.73		
Method VI	(Modified Method I)	22.0	....	....
		21.5		

We think Method VI is the most expeditious and accurate of all methods and we suggest experiments for next year to determine the amount of pure filicic acid present, rather than the crude filicin.

Method I is seen to give the highest results and very concordant results, while Method II gives lower results. Goris & Voisin say Method I weighs impurities as well as crude filicin, while Fromme says in Method II a decomposition of crude filicin in part occurs when long contact and heat enable the baryta water to act upon the filicin.

Method III is difficult and impracticable and its results valueless.

Method IV is also of little value as the magnesia saponifies the fatty oil of the oleoresin malefern and the soap formed occludes filicic acid.

Method V gives concordant results and seems practicable, but its results are evidently too low to justify its use.

Method VI, which is an improvement upon Method I by using petroleum ether because it is insoluble in water and hence a more accurate aliquot part can be taken than in Method I which uses ether. The crude filicin obtained by Method VI is remarkably pure, which is not the case in Method I.

We are inclined to think that the results by Method II are more nearly correct than Method I and that Method I weighs impurities as crude filicin because our results by Methods V and VI give results more nearly approximating those obtained by Method II and the end product weighed is undoubtedly purer in Method V and especially Method VI. Our own preference is for Method VI because it is the most expeditious process, requires no heating and gives the purest end product. Experiments made to estimate the pure filicic acid have so far not given any satisfactory results; and we think the subject should be taken up as a piece of research work for next year. This should also include if possible some clinical experiments to determine whether crude filicin or filicic acid is the active or more active principle of malefern.

Below are given copies of Methods I to VI for oleoresin malefern assay as used and reported above.

Method I—Five gms. of the oleoresin is dissolved in 30 gms. of ether and the solution is shaken out with 100 gms. of 3 per cent barium hydroxide solution. After allowing to clear 86 gms. of the barium hydroxide solution is decanted, acidulated with 3 gms. of hydrochloric acid and the mixture shaken with 25, 15 and 10 mls of ether. The combined ethereal solutions are filtered into a tared Erlenmeyer flask, washing the filter with ether, the ether is evaporated and the residue dried at 100° to constant weight. Good oleoresin malefern should contain 27 to 28 per cent of crude filicin. This method has been adopted by the Swiss and British (1914) Pharmacopoeias.

Method II (Fromme modified by Goris and Voisin)—In 1912 Goris and Voisin (Bull. Scienc. Pharmacol 1912, 705) reported that by this method too high results are obtained, because the ether dissolves in the baryta water and carries ether-soluble impurities into the alkaline solution. They therefore direct heating the 86 gms. of baryta

water solution until the ether is expelled, filtering and then proceeding as given.

Method III (Goris and Voisin)—Two to 3 gms. of the oleoresin (exactly weighed) is triturated in a mortar with 30 gms. of calcined magnesia until a uniform mixture is obtained. Then water is added until a paste is formed, which is gradually mixed with 250 c.c. of water. After allowing the mixture to stand for one-quarter hour the clear liquid is decanted and the residue is treated twice more with 150 mls respectively of water. The combined aqueous liquids are acidulated with hydrochloric acid shaken out with 100, 50 and 30 mls of ether, respectively, the ether is evaporated and the residue dried at 100 to constant weight.

Method IV—Two or 3 gms. of oleoresin (exactly weighed) was intimately triturated with 40 c.c. of milk of magnesia, 200 c.c. of water was added and the mixture was shaken in a mechanical shaker for two hours. It was then filtered, the residue was washed with water until about 300 c.c. of filtrate and wash water were obtained. This was then acidulated with hydrochloric acid, etc.

Method V—Two or 3 gms. of the oleoresin (exactly weighed) was dissolved in about 25 c.c. of ether, 40 c.c. of milk of magnesia was added and about 100 c.c. of water. The mixture was then shaken for about half hour, the ether was evaporated by gently heating the mixture and the liquid was then filtered. The residue was washed in water until about 300 mls of combined filtrate and wash water were obtained. These were acidulated with hydrochloric acid, etc.

Method VI—Method VI is practically the same as Method I, different from this only in that petroleum ether was used instead of ether. This was done because petroleum ether is insoluble in baryta water and consequently is not liable to carry impurities into the aqueous solution which according to Goris and Voisin made the results obtained by Fromme too high.

SUBCOMMITTEE No. 14—MISCELLANEOUS ALKALOID & DRUG STANDARDS—Dr. Dohme. A large list of subjects was submitted to this subcommittee and some of its members took up some of the items, and I am pleased to report as follows upon them: Tests and physical constants for Arecoline hydrobromide. Coniine hydrobromide and Physostigmine sulphate (by B. L. Murray) Assay Process for Pomegranate Bark—tried processes German

and Swiss Pharmacopoeias and found process German the better both as to operation and results. Results.

	<i>German</i>	<i>Swiss</i>
Dohme	0.213%	0.146%
Dohme	0.23 %	0.120%
White	0.210%	

both low but this is due to the use in this country of bark of twigs whereas abroad they use bark of root.

Assay process of Cinchona—comparison of U. S. P. with Hydrochloric Acid process of the Swiss Pharmacopoeia.

<i>Process U. S. P.</i>		<i>HCl Process</i>	
<i>Gravi-</i> <i>metrically</i>	<i>Volumetri-</i> <i>cally</i>	<i>Gravi-</i> <i>metrically</i>	<i>Volumetri-</i> <i>cally</i>
5.00% Austin	4.63% Austin	5.65% Austin	4.40%
5.23% Austin	4.67% Austin	5.70% Austin	4.46%
6.12% Dohme	)too dark	5.47% Austin	4.26%
6.15% Dohme	)colored	& assist.	
5.69% Austin & assistant	4.62%	5.53% Austin & assist.	4.25%
5.62% Austin & assistant	4.88%	5.57% Dohme	5.1 %
		5.37% Dohme	5.25%

The hydrochloric acid process seems to give higher results and better results and its product can readily be titrated—which is not true of the U. S. P. process.

Assay process for Mandrake—Percolation Aliquot part

	<i>Method (Dohme)</i>	<i>Method (White)</i>
Dohme	3.58% resin	Dohme 2.78% resin
White	3.52% resin	White 2.65% resin

Assay process of Cantharides. A comparative study of the U. S. P. and Mr. Louis DuBois and Baudin's methods are submitted with results together with recommendations as to change of U. S. P. text to meet the experience of Mr. DuBois.

First lot—U. S. P. method—0.71 % free and combined cantharidin	
DuBois' method—1.17 % free cantharidin	
Second lot—U. S. P. method—0.56 % free and combined cantharidin	
0.57 % free and combined cantharidin	
DuBois' method—0.795% free cantharidin	
0.810% free cantharidin	

Baudin's method—0.789% free cantharidin
0.753% free cantharidin

DuBois' modified—1.73 % free and combined cantharidin
1.77 % free and combined cantharidin

SUBCOMMITTEE No. 15—MISCELLANEOUS CHEMICAL TESTS & STANDARDS—Dr. Rosin. Report gives program of work for future, but no actual results.

SUBCOMMITTEE No. 16—NITROGLYCERIN—Dr. Francis. Report to be submitted at the meeting.

SUBCOMMITTEE No. 17—PEPSIN, etc.—Dr. Fenger. This subcommittee recommends the adoption for *pancreatin* of the Fuld Gross method of determining the peptonizing power and suggests a standard of 1:25 by this method. It recommends that the present official method and standard of determining diastasic power be retained.

PEPSIN—for this drug the subcommittee recommends in place of the use of a rubber-tipped glass rod and small successive portions of acidulated water for separating the egg albumen particles; the following method:

10 grams of egg albumen (which has been passed thru the sieve) are weighed out and placed in wide-mouth bottles of 100 mils capacity. 35 mils of acid water are then added, followed by 5 mils of the pepsin solution. Stopper tightly, pound the bottle hard 75 times on a thick soft rubber pad or stuffed canvass cushion and then place in the heated bath for digestion. The rest of the pepsin process of U. S. P. is retained.

Experiments on deterioration of liquid pepsin and pancreatin preparations are in progress, but no results as yet available.

SUBCOMMITTEE No. 18—PITUITARY EXTRACT—Dr. Houghton. No report yet.

SUBCOMMITTEE No. 19—SURGICAL DRESSINGS & PLASTERS—Dr. Kilmer. A standard for absorbent cotton with methods of examination under the same standard is in hand and being tried out and also a proposed text for the U. S. P. on this subject.

It is unfortunate that despite our secretary's strenuous efforts the members of this section have not more promptly responded to his

and your chairman's requests to get their reports in by April 1st, because with the exception of the reports upon Glycerophosphates, Pepsin, Drug Extracts, Malefern and Miscellaneous Alkaloid and Drug Standards there is practically no report containing any results in the chairman's hands on the fifth of April.



ACETYL SALICYLIC ACID

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

MR. HOSKINS: (Reporting for Subcommittee No. 1 on Acetyl Salicylic Acid.) I have received no report from any other member of the committee, but I have done a little work on the three samples sent out by Chairman DuBois.

DR. FRANCIS: The matter of the stability has not been entered into much as yet?

MR. HOSKINS: Well, I did use these three samples with the idea of testing them out and also of making the test for free acetic and salicylic acid. The question of purity was to be taken up after that of stability, but the principal object, as I understood it, was to determine what the limits of the free acetic and salicylic acid should be and the method of determining that and also the melting point.

DR. FRANCIS: Largely chemical data then, with the idea of setting standards for quality. Just what particular work was assigned to the Committee in connection with acetyl salicylic acid? Was it a matter of purity, or did it have to do with stability and pharmaceutical difficulties?

MR. HOSKINS: The idea was to set standards for free acetic and salicylic acid that we could adopt.

DR. FRANCIS: Your Committee is not yet ready to make any report.

MR. HOSKINS: Not yet, insofar as I know.

DR. FRANCIS: I might suggest to you gentlemen that aside from the matter of tests, guaranteeing purity and absence of free acetic and salicylic acids, there is the practical question of converting acetylsalicylic acid into tablets. Some manufacturers have solved the difficulties involved and others have not. It is very easily decomposed. There is a very great variety of tablets on the market, some of which show no decomposition, some of which are in fair condition and some in a very bad condition indeed, after they have been manufactured six months; it is not at all uncommon to find commercial tablets with very marked traces of free acetic and salicylic acid. Do you care to discuss the manufacturing difficulties?

MR. TAILBY: There is one thing we have not considered, and that is the incompatibility of this substance. I think it ought to be considered by the committee.

DR. FRANCIS: We will make a record, so that this question of incompatibility will be referred to the committee, that is, incompatibility with other substances in the process of manufacture.



ACONITE

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

DR. FRANCIS: Committee No. 2. May I ask Dr. Englehardt to discuss the value of the chemical assay of this drug and its preparations?

Chemical Assay Unsatisfactory

DR. ENGLEHARDT: (Reporting for Subcommittee No. 2 on Aconite.) I believe this is a rather complicated matter to say the least. In my opinion, it is almost impossible to assay aconite preparations chemically, because the drug contains not alone aconitine but also its cleavage products and what we get in the assay process as aconitine is, without doubt, a mixture of aconitine and its cleavage products, benzoyl aconine and aconine.

Aconine itself is insoluble in ether, but I am inclined to believe that these other bases facilitate or increase the solubility of the aconine, and the end product is a mixture of aconitine and benzoyl aconine and aconine. I have broken up about 3 ounces of aconitine into benzoyl aconine and aconine, and within a short time a few grams of each one will be sent to the members of the subcommittee in order to study, not alone the chemical properties of these products, but also their physiological effects, and since the literature on this subject is not very exhaustive, I believe that some properties of these substances may be detected which may make a chemical assay of aconite possible.

But as I said in the beginning, I believe that it is almost impossible to assay aconite chemically. To illustrate the unreliability of the chemical assay, I may say that a weak fluid extract of aconite which assayed only .16 per cent of ether-soluble alkaloids, assayed 60% of physiological activity. A fluid extract assaying chemically .46% of ether soluble alkaloids had a physiological activity of 80%. Other fluid extracts assayed .43% and 50%, .5% and 58%, .48% and 160%, .47% and 100% respectively, etc. Still more unsatisfactory results are obtained in the assay of solid or powdered extracts of aconite. Even when exercising the greatest care in making these preparations, some of the aconitine is split up into ether-soluble bases, which show up in the chemical assay and are calculated as aconitine, but which are physiologically only slightly active or inactive.

In other words, absolutely no dependence can be placed on the chemical assay, and I believe the only thing that can be done is to work out a good reliable physiological process for assaying aconite and

do away with the chemical assay altogether unless we can find a method to eliminate the benzoyl aconine and aconine by some precipitant; but then again it is very difficult to work such a method into an assay process when we take into consideration that when assaying a standard fluid extract we get only 45 milligrams of alkaloids, and if we want to split up this small amount by a chemical process, I am afraid we are going to get results which are absolutely unreliable. Therefore, in my opinion, it would be best to study the physiological action of aconitine, benzoyl aconine and aconine and see whether or not there is a relation between these three. We may be able to find out whether or not benzoyl aconine or aconine act synergistically on the aconite or on each other. Up to the present time, in my opinion, both the chemical assay of aconite and to a great extent the physiological assay also are entirely unsatisfactory and should be omitted from the U. S. P. It is to be hoped that some means for standardizing the drug are found, considering its high potency of aconite.

DR. FRANCIS: Then you would sum up your opinion, Doctor, by saying that any chemical assay of aconite we have at the present time is useless?

DR. ENGLEHARDT: Absolutely useless.

DR. FRANCIS: Dr. Dohme has been prepared to admit the same thing, but I think he has been of the opinion that by a further study of aconitine and its composition products, he might be able to work out an assay process based on chemical methods. Do you partake of that hope?

DR. ENGLEHARDT: I do not want to express any hope at all. In breaking up aconitine, I found that aconitine and benzoyl aconine easily dissolve in ether. Aconine is not soluble in ether. Aconine is soluble in water; there is therefore a possibility that aconine can be separated from aconitine and benzoyl aconine by means of ether, but at the same time, as in most assay processes, substances are carried over into the ether, which are liable to increase the solubility of aconine, which, while in the pure state, is not soluble in ether, is then carried into the ethereal alkaloidal solution.

Anyway, we never know where we are; if we are able to precipitate the aconitine alone from the mixture of the cleavage products, very well, then we have a chemical assay process, but that, of course, is a matter of experiment. Such an assay process is possible but I do not know if it is probable.

DR. SNYDER: I recall that on reviewing the co-operative work we did a little over a year ago, quite divergent results were obtained, and I fully agree with Dr. Englehardt that the chemical assay of aconite seems impractical. Our physiologic results were quite a little closer than those obtained by the chemical method, and I always thought that we might get closer results still by the physiologic method if we secured some standard material with which to standardize our guinea pigs against seasonal variation.

It has been suggested to get pure aconitine for this, but I do not know whether aconitine itself would decompose or not. Also, in one of the journals I recently saw a suggestion that the Department of Hygiene should prepare a standard fluid extract of aconite and send a sample to the various manufacturers, and in that way provide a standard for physiologic assay work. I do not know just how practical that is.

DR. FRANCIS: How are they going to establish their standard for fluid extract?

DR. SNYDER: I do not know. Somebody recommended that it be done. As I understand, at the most it is not a type, it is simply a minimum standard; it might be 100% or 250%, and we would not be getting standardization at all.

DR. FRANCIS: When you refer to physiological tests, you have reference to toxicity tests?

DR. SNYDER: Yes.

DR. FRANCIS: The determination of a minimum fatal dose per kilogram?

DR. SNYDER: Yes.

DR. HEYL: We sent the drug to the chemical laboratory and to the pharmacologist; the results showed clearly that it was a waste of time to send it over to the chemical laboratory, so that work is now done exclusively in the pharmacology laboratory.

DR. FRANCIS: You have been working on the chemical assay and making determinations by physiological tests only?

DR. HEYL: Yes sir.

MR. WALTERS: We have not done any special work on aconite in the last year. I would say that it is impossible to have two standards, the physiological and the chemical, when they do not agree with each other; furthermore, it would be almost impossible to accept the fluid extract as a standard as suggested because the fluid extract will deteriorate.

Several years ago we tested some both chemically and physiologically and the tests showed a deterioration. Furthermore, as I remember it, in some work we did on the physiological test of aconitine, the peculiar thing we noticed was that the percentage of alcohol in the test solution caused quite a variation in the toxicity of aconitine. I think the work of this committee, if it is continued, should take into consideration the deterioration of each product.

DR. FRANCIS: That was one of the subjects given to this committee for investigation; in fact, that was one of the permanent subjects for the consideration of all our committees. As drug manufacturers we are very much concerned in the stability of our preparations, but of course it was clearly understood from the very beginning that there was no use in attempting to determine the stability of a preparation until we have a process for its accurate assay, so we are confronted by a very peculiar condition, in that we have no method of assay that is universally accepted as being quite accurate for aconite preparations.

I might call attention at this point to the fact that we are not only concerned as regards the assay of these preparations from the ordinary viewpoint, but that we also have to do with the government supervision of the sale of pharmaceuticals. A case arose not very long ago where a shipment of aconite drug was rejected by government officials on the basis of low chemical assay of so-called aconitine. They did not seem to have tested the drug by the physiologic method.

There have been a number of cases in our own laboratory during the past 12 months where we have attempted to check up the chemical assay by the physiologic method, and have found no correspondence whatever. I have seen instances where an extract of aconite could be diluted until it was practically innocuous, almost devoid of any physiological activity whatever, yet it would give a very high assay by the ether extraction method. That is sufficient to demonstrate that the chemical method of assay is absolutely useless, unless our committee succeeds in working out the chemical assay along wholly different lines, and I think that the sooner we abandon the use of the chemical assay and the sooner the Pharmacopoeia abandons the chemical assay, the better for all concerned.

We ought to turn at once to the determination of toxicity, until something else develops. It remains to be said that there is a certain diversity of result when the toxicity method is used, but it is the most universal at the present time and gives fairly good results.

It is understood, then, that this committee will continue its work during the present year. In the meantime, the physiologic method or toxicity assay will undoubtedly be taken into consideration by the other branch of our scientific section, the pharmacologists.



CANNABIS

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

The American vs. the East Indian Drug

DR. FRANCIS: Cannabis indica—do any of you gentlemen care to say anything as regards the respective merits of the American grown cannabis and the East Indian? Are you using the American grown cannabis, and do you consider it entirely satisfactory?

DR. ENGLEHARDT: We are using it in our place; in regard to the assay method we are not at all satisfied with the official method. In my opinion, the present official method is just as bad, if not worse, than the aconite method. The results are very, very variable, and in my opinion cannot be very much relied upon.

DR. FRANCIS: You are under the impression, however, that American grown cannabis does give you, on the average, results and practically as good results as the imported cannabis?

DR. ENGLEHARDT: I cannot say offhand how this is. My impression is that the American cannabis is of a very good quality, but I could not give you any complete data, because I haven't any records with me.

DR. FRANCIS: Do any of you know a proper diluent for extract of cannabis? Suppose you had an extract that assayed 150% or 200% strength, how would you dilute it?

MR. SNYDER: I might say that I have never had enough faith in the present U. S. P. assay of cannabis to dilute it. If we find one that gives a good test by that method, we simply let it go at that.

DR. FRANCIS: There are men in the United States at the present time whose opinions carry considerable weight, who are still very doubtful as to whether the American drug is as active as the East Indian cannabis. The work done in our own laboratories has convinced us that the American grown drug, if of proper quality, is just as efficient and gives the same physiologic action as the imported drug.

The Diluent Problem

Of course the extract owes its value very largely to the resinous principle, and the consequence is that you use a 95% alcoholic menstrum in making the extract, assuming you produce an extract that is over standard. There is a practical question as to whether you should dilute this, and if so, with what? Frankly I do not know of any

extract that is perfectly miscible with alcoholic extract of cannabis, so the question arises as to what you should use as a diluent.

Physiological Tests Inaccurate but Useful

The physiological method of testing is not at all accurate, but it enables you to distinguish an active extract from one that is practically inert; that assertion cannot be confuted; so that the physiologic tests should be retained in the Pharmacopoeia and should be used as a matter of safety.

The Oil Factor

Now I have noticed, during the past 2 or 3 years, a somewhat peculiar thing in connection with the manufacture of extract of cannabis. Percolating the drug with 95% alcohol in the ordinary manner, recovering the alcohol in a vacuum still and condensing the extract as much as possible, we find that some extracts are very liquid, in other words, that they contain a very high percentage of oily matter; some extracts on the other hand, contain a comparatively small percentage of fats or oily matter and are quite stiff, almost the consistency of a pill mass. So far as I have been able to determine, the oily extracts owe their result from the presence of a large percentage of seed in the drug. Of course ripe seed are supposed to be excluded, but the fact is that it is practically impossible to purchase ample quantities of the cannabis drug that do not contain a greater or less percentage of seed. These seeds, of course, contribute fat or oil, and just to the extent that you have oil present, your extract is diluted, so that with an oily extract, you get a high yield, and in the absence of oil, you get a low yield.

MR. THAYER: Is not that a solution of your diluent problem then?

DR. FRANCIS: That points to the fact that you should exclude a drug containing any seed whatever, but under present conditions it is impossible to carry your selection to such severe lengths. Now, answering your specific question, it is not a good idea to dilute extract of cannabis with any ordinary oil, for the reason that the presence of oil makes the extract unworkable in pharmaceutical operations; for instance, in pills and tablets, if you have a high percentage of oil in your extract, it is almost impossible to hold it; it will penetrate through your pill or tablet mass and stain your coatings, and it makes an unsuitable tablet and leads to suspicion of the druggist and doctor.

MR. HOSKINS: Would it be possible with this cannabis that has the oily seed in it, to extract that oil first and then make your extract?

DR. FRANCIS: Judging by my own experience, I do not think that would be practical, because the active principle of cannabis is soluble in oil. It is possible, by the use of proper solvents and distillation under very high vacuum to produce cannabinal in the laboratory. Cannabinal is a reddish colored resinous liquid which produces very well marked results when administered to animals in definite doses.

Oil as Activating Agent

There is a very peculiar thing in connection with that. Having produced this so-called active principle in an impure form and established its dosage fairly well, if you dilute it with five or ten times its volume of cottonseed or olive oil, the same dose will give very much greater results. I cannot explain this; I do not know why it is true, but it would seem that the substance is activated by dilution with oil. That suggests that it is entirely practical to extract an active resin from cannabis and dilute this in oil and put it up in globules or capsules. Is there anything further, gentlemen?

MR. HEYL: In the distillation in vacuo, don't you have an enormous residue in your retort?

An Interesting Resinous Body

DR. FRANCIS: Yes, there is evidently a considerable amount of decomposition and loss of resinous matter in the retort. In other words, there is a manufacturing loss, as we call it; but, on the other hand, you get a reddish colored, resinous body which is very interesting and very powerful. Up to the present time I presume that the distillation of this resin would only be interesting from an experimental viewpoint; the process is not perfected so as to make it practical from a manufacturing viewpoint.

MR. HEYL: Does the activity of the distillate equal the original activity?

DR. FRANCIS: Grain for grain it very much exceeds the activity of the original extract. You know there has been some very interesting work done in the attempt to extract the active resident from cannabis indica; you will find many references in the literature.

DR. ENGLEHARDT: About half a year ago we received a very large shipment of domestic cannabis and it was physiologically two and a half times stronger than a good brand of foreign cannabis.

DR. FRANCIS: I think it remains to be confessed that the cost of the East Indian cannabis is so tremendous that possibly 95% of the extract of cannabis sold in the United States is made from the native drug. Some manufacturers supply both and properly label it, but of course the price charged for the extract made from the East Indian cannabis is enormously greater than for that made from the home grown drug. What I meant to say is that if physicians desire an extract made from the imported cannabis, it can be obtained, and the extract made from the home grown drug is not sold under false pretenses.



CHLOROFORM AND ETHER

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

DR. FRANCIS: (Reporting for Subcommittee No. 4, *Chloroform and Ether*.) The report of this committee up to the present time is altogether a report of hope rather than of things accomplished. The first thing we want is to establish tests that will guarantee to the physician ether and chloroform fit for anaesthetic purposes. In the second place, there are a number of practical problems that are very important to the manufacturers and distributors of ether and chloroform, such as the presence of decomposition products.

Decomposition Products

There are decomposition products in ether and possibly in chloroform that may be very harmful when administered to a patient; in the case of chloroform, so far as my knowledge goes, these decomposition products are mainly chlorinated bodies and are not so important as the decomposition products in ether. I do not hesitate to say that if you go to the retail drug trade of the United States and purchase a hundred packages of anaesthetic ether that regardless of the firm by which they may have been made, you will find very appreciable quantities of peroxides, aldehydes, and acids in 90% of the hundred packages. Now that will not be true, if you happen to obtain a package that has been put up 30 days or 60 days before your purchase, but in the ordinary process of sealing ether in cans, distributing it through the jobber and finally placing it on the shelves of the retailer, or shipping it to the hospital for storage until used, it seems inevitable that this decomposition will take place.

The sequence of the decompositions resulting in the production of these several bodies is very interesting, and is undoubtedly due to the fact that there is a certain amount of air originally enclosed in the container, air which contains oxygen. This oxygen acts upon the substances in the ether, resulting in the production of peroxides, aldehydes and finally acetic acid.

Whether these peroxides, aldehydes and acids are harmful to the patient or not is a question I do not feel competent to discuss, but those are bodies that we must be able to detect and to guard against in excess in these specifications that we may establish for ether. The same thing will hold true as regards the tests we must establish for chloroform; we must be able to guarantee to the surgeon that he is

going to obtain ether and chloroform that is fit to be used as an anaesthetic.

The Container Problem

Now then, aside from these tests and specifications which can be made as modifications of the specifications given in the U. S. Pharmacopoeia at the present time, there are a number of interesting problems. First of all, that of the container, whether we shall use an ordinary tin container, as we do in marketing ether, to a greater extent than in the marketing of chloroform; whether we shall put it out in glass; whether it shall be amber glass or clear glass; whether the contents must be protected from the effect of light, etc.

Whether our committee will be willing to take up such an investigation of commercial containers remains to be seen. I have suggested to the committee that this will be one of the most important things they can undertake from the viewpoint of manufacturers.

Effect of Light on Ether and Chloroform

Some experiments I have made during the past two years have demonstrated to me that light, for instance, does have a very considerable effect upon the stability of both ether and chloroform.

Glass Versus Metal Containers

There is no doubt that the presence of metal has a great deal to do with the preservation of ether or with the changes that may take place in the constitution of ether, because a sample of pure ether put up in an ordinary tin can, stoppered in the usual way or sealed by a metallic seal in the usual way, varies considerably in its constitution after the lapse of six months from a sample of ether put up in a perfectly clean dark colored bottle or put up in a flint bottle and kept in the dark. I have demonstrated that it is entirely possible to put up ether in glass, protect it from the light and have it test nearly perfect at the end of 12 months. I have never seen a case where ether could be put in a metal container and kept under such conditions; aside from the effect of ordinary iron, steel, tin, zinc and other metal, there is a question as to the effect of iron oxides or iron rust upon ether. My own experience seemed to indicate that the presence of a trace of iron rust has a tremendous effect, perhaps as a catalytic agent, in bringing about the decomposition of ether.

Now, aside from these questions that have been presented to the committee for investigation, I want to say that we are not ready to

make a final report. The Chairman has submitted a series of specifications covering the detection and estimation of impurities, alcohol, water and various other substances in ether and chloroform, and the committee is working on these at the present time; but we unfortunately began our work rather late in the season, and these are all questions which require the lapse of time, perhaps four, six or maybe ten or twelve months, because the time element is the thing that tells in determining the stability of ether and chloroform, because we are dealing with commercial conditions. .

Dr. Cotton's Ether

I might say that a somewhat interesting condition has arisen within the last few months. Those of you who recall the report made last year by this committee will remember that we referred to an ether which had been advocated by a Canadian surgeon, Dr. Cotton. At that time I referred to it as Cotton's ether. It was ether to which he had added certain other substances, basing this upon his claim that ordinary chemically pure ether was not anything more than an intoxicant, like ordinary alcohol. In other words, he claimed that pure ether was not an anaesthetic in the sense desired by the surgeons, so he proposed to modify this by the addition of some other substance. It seems that the duPont Company took this suggestion of Dr. Cotton in hand and have been experimenting for about two years. They have been modifying pure ether by the addition of other substances and submitting this ether to surgeons in the hospitals, and have gotten some very interesting results, and I was told by a representative of this firm that within the last month or so the duPont Company are now selling this so-called "Cotton" ether, at a higher price, I presume, and advocating it as a substitute for ordinary ether. There may be some of you who can throw some light on the Cotton formula.

Refuting Dr. Cotton's Theory

MR. HEYL: The thing which interested me in the discussion of the Cotton ether is the difference between the opinions given there and the opinions given in Gwathmey's text book on Anaesthesia, in which the chemical work was done by Prof. Baskerville. This textbook is a co-operative piece of work with a great deal of clinical and chemical work. The latter was done by Prof. Baskerville. The result of the chemical work as I gather, suggests that nothing but the purest ether should be used. They discussed purity elaborately—they talk

of the boiling point in such a way as to indicate that a very large fraction of it boils within narrow limits, and it would appear from that work that they obtained very good clinical results with an elaborately purified ether. They recommend that the ether be put into an ampul and that it comply with the specifications which would agree closely with a chemically pure ether. That interested me, because it is so different from those who claim that they get the best results with an ether which contains certain impurities.

DR. FRANCIS: Do you happen to know whether Dr. Baskerville investigated ether as an anaesthetic, after Dr. Cotton had made public his experiments on modified ether, or before?

MR. HEYL: This text book was written I think in about 1915.

A Pure Ether That Gave Poor Results

MR. SNYDER: Personally I do not know anything about the manufacture of ether. However, I have a friend who, for a number of years, was connected with one of the large manufacturing companies that make ether, and he told me recently that several years ago they decided to make a very pure ether in which they eliminated practically all of the alcohol. They put it upon the market, but complaints of physicians were so numerous that they withdrew it.

Ethylene as the Anaesthetic Factor

DR. ENGLEHARDT: Is this Cotton ether an ether which contains more ethylene than is usually found in ether? Pure ether is said to have no anaesthetic action, but the ethylene in the ether is claimed to produce the anaesthetic effect.

DR. FRANCIS: I have seen that statement made, that ordinary ether owed its action largely to the ethylene held in suspension, and I know that commercial anaesthetic ether is sometimes very highly charged, so much so that dropping a splinter of glass in a flask of ether in the laboratory at 70 degrees causes it to foam almost like sedlitz powder, whereas other samples will be almost entirely devoid of this substance. What truth there is in the claim, I cannot say. I do not recall just what Dr. Cotton proposed to add to his ether.

It is very evident that results have been sufficiently encouraging to lead one firm of manufacturers to consider the project very seriously, so that eventually this question is going to be settled by practical demonstration. Dr. Cotton's original criticisms of ether were very interesting in that he went so far as to claim that a chemically pure

ether was nothing more or less than an intoxicant and not an anaesthetic; that under the best conditions it was nothing more than the vehicle for the anaesthetic that the doctor desires.

Increased Cost With Glass Containers

MR. AUSTIN: It occurs to me that the marketing of such an anaesthetic as ether in glass bottles or in ampuls, as Dr. Cotton suggests, will not only greatly increase the cost of ether to the patient but some difficulty may arise in connection with transportation, unless the ampuls or bottles are hermetically sealed in tin containers. This would also result in increased cost to the patient.

DR. FRANCIS: Those are all practical problems that our committee should be willing to undertake. I think that the houses engaged in the manufacture of chloroform and ether would be very much interested in having these practical problems as to containers for instance, worked out, because the kind of container and the conditions under which those packages are marketed certainly must be very important. I have gone deep enough in the matter to know that the exclusion of air, for instance, and the presence of certain kinds of metal, does have a profound effect upon the keeping qualities of ether. I cannot speak so definitely of effect of containers on the stability of chloroform. As to putting ether in ampuls or glass bottles, it is a question whether this is necessary; if we can give the surgeon a quality of ether that is much better by the use of the glass container, the matter of increased cost is not going to cut much figure.

Clinical Assistance in the Research

MR. HEYL: I want to ask what are the prospects of obtaining clinical assistance? That has been mentioned several times in our correspondence.

DR. FRANCIS: I think we will have ample clinical assistance if the project is gone about in the right way, and provided those most interested in the production of ether or chloroform will stand a limited expense. I have not the slightest doubt that our committee could enlist the co-operation of four or five quite able men in some of the larger hospitals who would very willingly undertake a comparison of the results obtained from the administration of ether, of, say, two or three or four formulae to a succession of patients just as they come into the hospital.

I say that because I have had such experiments made on previous occasions. It was done by sending a physician, or perhaps three or four physicians in different institutions, two cases of ether of a dozen pints each. Proper explanation was made as to the exact constitution of those ethers, the physician must be given all the facts; and I found them more than ready to test ether or chloroform and finally make complete clinical reports.

I did that three or four years ago in connection with a variation in the proportion of alcohol. We had complaints from physicians regarding the amount of ether required to affect the average patient, and I noticed that some lots of ether would give rise to no criticism from coast cities like New York or Boston, whereas the same ether, when sent to Denver or some very high point, would almost inevitably lead to complaints.

It occurred to me that the trouble was due to a variation in the rate of evaporation, this being dependent on the percentage of alcohol contained: because you know you can retard the evaporation of ether in a very remarkable way by increasing the proportion of alcohol. I tested this by sending out several cases of ether in ordinary packages containing a dozen half-pounds, and I found physicians more than ready to co-operate.

If this committee wants to carry the matter so far, we can get co-operation from very good men. It is a question whether the manufacturers are willing to prepare this ether, label it properly, and supply it to the physicians gratis.

MR. HEYL: Then the committee should store this ether.

DR. FRANCIS: It would depend on whether the object in mind is to determine the effect of storing the ether or not. If we want to determine the effect of ethyl chloride or ethylene oxide on ether, it would not be necessary to store it.

MR. HEYL: I believe that it would, because that boils at about 10 or 12.

DR. FRANCIS: If that is the case, the specific manufacturer should prepare half a dozen cases of half pounds or quarter pounds of ether to be sent out for testing.

MR. HEYL: By storing samples, we will kill two birds with one stone.

DR. FRANCIS: We could do that. I would like to say, as Chairman of this committee, that I will undertake to get this co-operation

and distribute those samples, provided the firms actually engaged in the manufacture of ether and chloroform, are willing to supply the material and pay transportation. I would like to ask the gentlemen of this committee whether experiments on containers are not equally and perhaps more important than the chemical tests we are undertaking at the present time?



ASSAY OF MERCURY

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

DR. FRANCIS: The next is the Committee on Control Assays. You may, perhaps, recall that this term Control Committee was applied for lack of a better designation to a committee whose services should be available to any member of the association when an emergency might arise.

Merits of Mercury Mass Assay Methods

I sent out to the committee a few weeks ago a request for co-operation on control assays on mercury mass, this being due to a question as to the mercurial content of blue mass pills. This brought up the question as to the proper method of assaying mercury mass or mercury mass pills or tablets in our own laboratory. Our chemists were inclined to advocate the use of the sulphide process. You will recall that in the U. S. Pharmacopoeia, under the head of bichloride of mercury, the mercury content is estimated as a sulphide, whereas in mercury mass it uses an entirely different method. As a result, several methods have been discussed by the members of this committee, consisting of Messrs. Snyder, Rosen, Dome, Patch, Proctor, Murray and Francis. I will not take up the time of the section further than to say that when the several results from the several different laboratories were finally compiled, that one method seems to be about as good as the other.

Weaknesses of Sulphide Method

We have taken up first the sulphide method, that is to say, the method of converting the mercury into solution as a nitrate or a chloride, precipitating it as a sulphide in the usual way, transferring the precipitated sulphide to the filter and dissolving out any precipitated sulphur by the use of carbon tetra chloride. The weakness of this particular process is that unless you are very careful, you may have an excessive amount of sulphur precipitated, and that a portion is not subsequently dissolved by the carbon-tetra chloride, so that you weigh some sulphur as mercury sulphide, giving high results. This objection is met by saying that several experiments have shown that it is practical not to precipitate an excess of sulphur; it is thoroughly practical to dissolve out all the precipitated sulphur, so that you really weigh mercury sulphide and no sulphur. There is, however, always

the possibility of weighing sulphur; so that is the objection to this particular process.

The Electrolytic Method

Another method advocated by several of our members, and a very reliable one, is the electrolytic method; getting mercury in a solution and depositing it on a revolving cathode in the usual way. The results check fairly well, but I think in most cases they are a shade lower than the average results obtained by other methods.

The Most Important Part of the Mercury Assay

Now, in these three methods, the sulphide method, the one adopted by the U. S. Pharmacopoeia for mercury mass and the electrolytic method, the most important detail is the method of preparing the mercury for final precipitation or estimation; in other words, we have determined that the most important part of the mercury assay, regardless of what particular method you may adopt, is to prevent the loss of mercury by volatilization or splitting process of breaking it down and getting it in solution by the use of a combination of acids, potassium chloride, etc.; that is to say, to avoid mechanical loss. This can be overcome by avoiding the use of shallow vessels and using a long-bodied or long-necked flask.

Merits and Demerits of Electrolytic Method

MR. PARKER: How much lower is the electrolytic assay than the sulphide method?

DR. FRANCIS: I think perhaps I had better quote some data in order to show you how results compare.

Mercury Estimations

REPORT FROM DR. S.

Sample Mass Mercury No. 1

Sulphide Method	38.6 %—42 %
Electrolytic Method	30.6 %—30.7%
U. S. P. IX Method.....	30.02%—33.1%

Sample Mass Mercury No. 2

Sulphide Method	32.2 %—33.46%
Electrolytic Method	32.6 %—32.7 %
U. S. P. IX Method.....	33.67%—33.81%

Sample 5 Gr. Pills

Electrolytic Method	0.601 Gm.—0.607 Gm.
U. S. P. IX Method.....	0.634 Gm.—0.616 Gm.

Sample Mercury Mass No. 3

Sulphide Method	32.6%—32.6% Hg.
Electrolytic Method	33.0%—32.9% Hg.
U. S. P. IX Method.....	32.8%—33.1% Hg.

Sample Mercury Mass No. 4

Electrolytic Method	33 %—33.1 % Hg.
U. S. P. IX Method.....	33.24%—33.18% Hg.

REPORT FROM DR. G.

	<i>Pill No. 1</i>	<i>Pill No. 2</i>	<i>Pill No. 3</i>	<i>Pill No. 4</i>
Sulphide Method	33.6% Hg.	34.0%	33.8%	33.9%
U. S. P. IX Method.....	32.7% Hg.	33.0%	33.6%	32.6%

Metallic Mercury

Sulphide Method	99.88%	99.3 %	99.96%	99.9 %
U. S. P. IX Method.....	99.74%	99.94%	99.10%	100.10%

REPORT FROM DR. R.

Sample Mass No. 1

Sulphide Method	34 %
U. S. P. IX Method.....	33.62%

Sample Mass No. 2

Sulphide Method	33.53%—33.68%
U. S. P. IX Method.....	32.90%—32.63%

Pure Metallic Mercury

Sulphide Method	100.38%—100.26%
U. S. P. IX Method.....	99.49%—99.91%
U. S. P. IX Method.....	99.86%—99.75%

I may say in summing up, that the opinion of our committee, so far as I can judge, seems to be this: the electrolytic method is the most exact; it has a tendency to give slightly lower results, probably because it more nearly estimates pure mercury; that the results are not sufficiently more accurate to make it the more desirable method for ordinary purposes, and that the objection is raised that the electrolytic method, as an ordinary laboratory process, is a little long and complicated. Personally I hardly agree with this opinion, because I think the majority of the laboratories are now fitted with apparatus for electrolytic methods, and it is then very easy; of course, with laboratories not properly equipped this objection may be valid.

How conveniently one can use the electrolytic process in a manufacturing laboratory where they are frequently turning out large batches of mercury salts I am not able to say; it may be too slow.

The U. S. P. Method

When you discard the electrolytic method as being too intricate or requiring too much apparatus, the members of our committee seem to think that the Pharmacopoeial process for mass of mercury gives

very accurate results and is very satisfactory. Some chemists insist that the sulphide method is better than the U. S. P. method.

Volitization in Electrolytic Method

DR. ROSIN: In my experience the electrolytic method has a tendency to give slightly low results. During the process of electrolysis considerable heat develops and a small quantity of mercury volatilizes. If the solution is kept cool during electrolysis, more accurate results are obtained. I have experienced this in a number of instances and volatilization of mercury appeared to me the only possible explanation for the low results.

DR. FRANCIS: That is a very interesting observation that if the electrolization is carried out under ordinary conditions, there is a volitalization of the metallic mercury and consequently a loss which gives you lower results. I am not competent to comment on that from lack of experience.

MR. PARKER: I have done a great deal of work on oxide of mercury and I believe the gentleman's observation is correct, and consequently, that you will get lower results in the electrolytic method than by the volumetric and the sulphide method. The volumetric method and the sulphide method are the two that are more accurate. I have found a range of .4 or .7 per cent lower on comparative analyses of the volumetric method and the electrolytic method, and I believe there is a slight loss of mercury by volatilization.

MR. SNYDER: In assaying by the electrolytic method, I have not taken into consideration the possibility of very much loss by volatilization, but after getting our letter I saw there were considerable chances for that and I am having some experiments made in the laboratory by weighing out definite amounts of pure metallic mercury and then the balance of the material that goes to make up that mass of mercury, and I am going to see just what the loss is by the electrolytic method, and will be very glad to send it on to the chairman after we get it completed. It will probably be completed in a couple of weeks.

DR. FRANCIS: I would like to ask Dr. Rosin if he based the observations on solutions made from mercury?

DR. ROSIN: I have experienced it with pure mercury and U. S. P. bichloride.

DR. FRANCIS: That brings up a phase of this assay that ought to be followed out by the committee at once; it ought to be threshed

out thoroughly and the facts made public. I confess that it never occurred to me that there might be a loss on account of the variation in temperature in the electrolytic assay.

DR. ROSIN: Many are using the electrolytic method very extensively because it is so convenient.

Assay of Calomel

MR. HOSKINS: I would like to know what the experience of the other members has been as to the volumetric method for calomel and the sulphide method for calomel tablets; but pure calomel, but finished tablets? I found the sulphide method perhaps took a little longer, but it seemed to be much more accurate. The electrolytic method I do not know much about.

DR. ROSIN: I think iodine in the assay of calomel gives very good results, but there is not sufficient excess of iodine. If .6 or .7 gm. of calomel is used you will have no trouble in obtaining good results.

MR. PARKER: I found trouble in getting the calomel in solution.

DR. ROSIN: That is due to the insufficiency of iodine. Using 1 gm. of calomel there is too little excess of iodine.

A MEMBER: We have used an excess of iodine over the U. S. P. to insure solution, and I have the chemists watch it very closely to see that every particle of it is in solution.

DR. ENGELHARDT: A year or so ago Dr. Lyons published a paper in which he said that in the assay of calomel by the iodine method it was advantageous to use fifth normal iodine solution because it takes up the mercury more rapidly than tenth normal, and since then we assay our tablets with fifth normal iodine solution and never experience any trouble.

DR. FRANCIS: It is the official method modified by use of fifth normal iodine solution.

DR. ROSIN: Is it not simpler to cut down the proportion of the calomel instead of making another solution?

DR. ENGELHARDT: You may use tenth normal iodine solution, but it is often necessary to shake the mixture in a mechanical agitator.

MR. HOSKINS: If you use pure calomel and assay it, you can tell easily whether it is dissolved, but if you have a colored tablet, I find it very hard to decide whether it is dissolved or not, and I believe the volume used has a great deal to do with the results. I reverted to the sulphide method, because I did not feel sure of the other.

MR. BERG: During the course of the investigation of tablets in the Army, we had a great many calomel tablets to examine and found this same trouble, and thought possibly it was due to a little oil or diluent used in the tablet in compressing it, and occluding calomel, which would not go into solution with the iodine. We got around the difficulty by using 5 c.c.'s of chloroform, which seemed to dissolve the grease and permitted the iodine to come in contact with the calomel.

DR. FRANCIS: It seems to me that is a very good point, unless there are reasons to apprehend that there is some chemical decomposition of calomel. The average man seldom has occasion to assay calomel; he merely tests it for purity. The technical work is directed toward the assay of calomel tablets or pills.

MR. HOSKINS: I would like to ask if there would be any advantage in using the chlorate of potash in hydrochloric acid for oxidation over using bromine water in hydrochloric acid. I have used it as a check against chlorate of potash, and got practically the same results, and to me it takes less time and you are more sure of having your bromine boiled out.

DR. ROSIN: You will have sulphur precipitated with it.

MR. HOSKINS: Well, I can get rid of the chlorine.

DR. ROSIN: The conversion of calomel into a soluble mercury salt is easily accomplished by the use of bromine or chlorine and then assayed by the sulphide process. There is, however, in this process, a source of loss which is to be guarded against. If the excess of oxidizer is expelled by boiling, the dissolved mercury will be lost through volatilization. It is, therefore, necessary to remove excess of oxidizer by the addition of a slight excess of a suitable reducing agent.

Results Should Be Published

DR. FRANCIS: I sincerely hope that the work that has been done by the several gentlemen on this committee is not going to be buried in the records of this association. One of my assistants has written a paper to be published in one of the chemical journals, outlining his own experience and recommendations, but it seems to me that it would be a very wise thing for some of you gentlemen who are in a position to speak authoritatively, to publish your results and it is very appropos that such things should be given the light just now, because you will remember that the Pharmacopoeial revision will commence within

the next twelve months. If you want any changes in the official processes, now is the time to advocate them, and not 3 years from now; so I will leave this subject by asking you to bear this fact in mind; if you have accumulated a lot of valuable experience and have it backed up by data, by all means, make it public, put it in one of the journals so it will be available.



DILUENTS AND EXCIPIENTS

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

MR. PROCTOR: (Reporting for Subcommittee No. 8, on Diluents and Excipients.) In taking up that work last summer and reviewing what had been done before, I saw that the problem embodied not only the question of diluents, but also the standardization of different tablets and natural divisions of our manufacturing. I know the report that was made in the war work on the standardized sizes of tablets, that is, fixing the amount of diluent within certain limits, would seem to be rather an important question, and in getting ready for this work, I have subdivided pharmaceuticals, and, taking tablets as the first division, am ascertaining what is the practice in the laboratories of the different members at the present time. I have a tabulation of all the competitive tablets, showing the actual amount of diluent used at the present time in the different laboratories that reported. Dr. Francis, in his work on this committee, made a very comprehensive list of diluents according to their general classification.

Proposed Work on Diluents

I propose to take the line of tablets first and classify diluents; submit the list showing the average amounts of excipients now used in each tablet, back to the members of the committee with the sub-division of diluents as arranged, and suggest to the committee that it accept certain limits to the amount, and certain classification as to kind of excipients for each tablet, not to bind, of course, the committee or the members to the using of any particular diluent in any tablet, but having in mind that, in case a member should be questioned as to the use of kaolin in a tablet, the member would be in a better position if his Association approved kaolin as a suitable diluent for that type of tablet. The work involves a good deal of statistical preparation. Then, if we can get anywhere on tablets, we propose to take pills, extracts, etc.

Effect of Diluent on Tests

In conversation this morning one thing came up that might be interesting. We all know that the Chairman said that laboratories fall down when we make a pill or tablet that checks absolutely in every way and we believe that the content is correct, but in our laboratory we usually test one ingredient in all products. That means that we have to find easy ways, and in the determination of morphine,

quinine and alkaloids of that sort, we have for a long time determined the sulphate radical simply as a check on the manufacture. We found that a small proportion of starch was being used in these tablets to aid disintegration. The manufacturers of the starch introduced sulphate into their products as an impurity and the value of our method was entirely destroyed, but it shows that the diluent does have something to do with the actual operation of the testing laboratory, and I think that when we get into the subject we will find this to be true in other cases.

Trade Secrets Not Desired

DR. FRANCIS: I am going to make an explanation that perhaps a good Chairman could not very well make. I happen to know that there is a certain amount of hesitation on the part of some members of this association to giving information that may be requested by Dr. Proctor. In other words, one of the employees of a manufacturing house may feel that they have discovered some diluent or excipient that is possessed of peculiar virtues, that it has some peculiar value that is not generally known, and they, therefore, hesitate to answer specific questions or to give very full details, so that I take it for granted that if Prof. Proctor should ask that every manufacturer give him all of the excipients or diluents of certain tablets and the proportions used, he would fail to get the information he asked for.

I think that is the reason why some of the firms he has addressed have, up to the present time, not answered; but if he writes to one of you gentlemen and says: "Will you give me the proportion of excipients and diluents in the following tablets, you can, without giving away valuable information, say that the tablet contains one in five, one in eight parts or 2.3 grams of diluent and excipient, because Prof. Proctor can get the information easily by the use of scales, and you might just as well give him the information that you have two grains of diluent and excipient in the tablet, and save him the trouble; but if you perhaps use a little talc and a little calcium carbonate precipitated and a little gelatine and something else, you might not want to give all these details and you do not have to, but for heaven's sake, co-operate and give him the total amount of diluents and excipients as required.

Justifying Certain Diluents

There is another suggestion I have in mind that the professor has not touched on, one which is of interest to the Association, and

that is the legality and advisability, from a medicinal standpoint and otherwise, of using certain disintegrating substances, certain diluents and excipients. I thought we might discuss the advisability and propriety of using, let us say, terre albe in certain classes of tablets. Some firms making tablets containing extract of ergot, etc., do not hesitate to incorporate a certain amount of terre alba. Is it good practice? Certain other manufacturers incorporate a certain proportion of calcined magnesia. Is it justifiable and proper? It seems to me there is no objection to our putting ourselves on record in dealing with cases; we need not specify any particular tablet, but we can say that magnesium oxide is justified in certain tablets containing resinous or greasy extracts.

Government Investigating Certain Tablets

MR. LYNN: The U. S. Bureau of Chemistry is now making a very comprehensive examination of tablets? It seems from a statement made by an official that there have been received by the Bureau a great many complaints from physicians throughout the country of disappointing results in the use of certain tablets. Such complaints have been so numerous that it led the Department to begin a very comprehensive investigation, and their agents are now collecting a wide range of samples of all the makes on the market for the purpose of an examination.



DRUG EXTRACTS

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

THE CHAIR: The next is a report from the Committee on Drug Extracts, of which Mr. Snyder is Chairman.

I think the quickest plan would be to have Dr. Snyder take up some of these topics and report on them, and then we can discuss them later.

Fluid Extract of Ipecac

Mr. Snyder reads:

U. S. P. IX Formula Unsatisfactory

The present U. S. P. IX formula is evidently very unsatisfactory, as practically everyone has reported trouble. Laboratory experiments have definitely indicated that the present menstruum will not exhaust the drug within a reasonable time with a reasonable amount of the menstruum, while the resulting fluid extract often precipitates and is consequently unsightly from a physical standpoint. The U. S. P. VIII menstruum is much more satisfactory but is open to the following objections:

"Pharmacists demand a fluid extract of ipecac which will be readily miscible with syrup and the U. S. P. VIII product on account of the high alcohol, with which it is run, will not meet this requirement, while the U. S. P. IX does.

The alkaloidal standard for ipecac drug of the U. S. P. IX is 1.75 per cent, while that of the fluid extract is placed at 2 per cent, an increase of 14 per cent. The committee has been unable to find any reason for the increase and are of the opinion that a standard of 2 per cent is too high. In fact, one member has questioned a proposed standard of 1.75 per cent. Submitting the results of ten samples of Carthagenia Ipecac which assayed 1.78 per cent, and of thirteen samples of Rio which assayed 1.57 per cent: A form letter has recently been circulated among the members requesting their results upon both Carthagenia and Rio Ipecac covering a period of several years. At the time of writing this four firms in addition to the one mentioned above have replied as follows:

	Rio		Carthagenia	
	Average	Samples	Average	Samples
	Assay	Exam.	Assay	Exam.
No. 1	1.71%	1	2.10%	10
No. 2	None	None	2.14%	25
No. 3	1.86%	10	2.12%	30

No. 4 replied as follows: By selection of samples offered averages have been running from 1.9 per cent to 2.56 per cent.

Alkaloidal Content of Carthagenia Ipecac

From the replies received it would indicate that Carthagenia Ipecac averaged about 15 per cent higher in alkaloids than Rio. When we have received further

replies, we hope to be in a position to recommend a standard for both drug and fluid extract based upon the average grade of ipecac offered for sale in this country.

Work on Menstruum of the Drug

The value of glycerin in the present U. S. P. IX menstruum has been questioned and it is doubtful if this ingredient serves any useful purpose as far as percolation is concerned, although it may be of advantage in the finished product to prevent precipitation.

The use of hydrochloric acid in the menstruum is also under discussion, to decide whether this aids in the extraction or if it is in the right proportion. Dr. Francis has presented the results of assay made upon fluid extracts which indicate that in using the sawdust method of the U. S. P. IX the results obtained are considerable higher, if the extraction with ether is made over a period of six hours, than if the U. S. P. time of two hours is used. Professor Patch states that if washed sand is used to replace the sawdust, this variation is eliminated.

Experiments are being conducted in two of the laboratories at the present time to endeavor to develop a menstruum which will practically exhaust the drug with a reasonable amount of menstruum and to develop a fluid extract which will be miscible with syrup and present a minimum of precipitation. If we are unsuccessful along these lines, it has been suggested that we return to the menstruum of the U. S. P. VIII and devise a formula for the manufacture of Syrup of Ipecac using the fluid extract made with the high alcoholic menstruum.

DR. FRANCIS: Gentlemen, you have heard several sub-topics presented in the course of this paper from Mr. Snyder. The first is the average content of alkaloid in ipecac, and the second is as to whether the alkaloidal standard of the fluid extract is too high. Those are features which will have to be investigated by the Committee and subsequently taken up by direct communication with the Revision Committee of the Pharmacopoeia, they can only be decided by the collection of a lot of data from the laboratories of the membership of this Association. I think we might dismiss that phase of the matter by requesting the members who are here to take the word back home that we need the heartiest kind of co-operation to obtain full data.

Miscible F. E. Ipecac Needed

The next point is the Process of Manufacturing the Fluid Extract and the Menstruum used. There are certain facts that call for a series of experiments that will consume several months, such details of the process of extraction, the kind of menstruum used, etc.

There is one feature of Mr. Snyder's report that I heartily agree with, and that is the question of the possibility of recommending to

the Revision Committee a miscible fluid extract, and at the same time a formula for the preparation of the syrup direct. The retail drug trade of the United States is going to insist on preparing syrup of ipecac directly and quickly from the fluid extract by dilution. It has been done for the last 5 years and will be done for the next 50. We must give them a fluid extract that is miscible with syrup. That means that we must work out our own difficulties and produce a fluid extract which will remain of full strength and can be produced economically.

Mr. Berg's Research on F. E. Ipecac

MR. BERG: Five or six months ago, in examining fluid extract of ipecac, I got some varying results with the assay process. I traced it back to the sawdust used in the assay process. Concordant results could not be obtained by the use of sawdust, on this one particular sample at least; so in place of the sawdust I used acid washed neutral asbestos fibre, such as is used for gas crucibles, and found the results to be very good.

This same sample of fluid extract of ipecac began to precipitate very copiously, so about that time I began thinking about the manufacture of fluid extract of ipecac, and gathered together all the literature I could on it, covering the last 50 years. After garbling the data, I came to the conclusion that the best extracting menstruum for fluid extract of ipecac was about a 70 per cent alcohol which, of course, does not produce a preparation which is miscible with syrup. I then conceived the idea that possibly, by the use of a vacuum still, we might be able to reduce the alcoholic content without injuring the alkaloids and by finally making it up with alcohol that would be miscible with syrup. I prepared such a fluid extract and it has been standing for about a month and looks very good.

One concern is making the fluid extract by extracting with about a 75 per cent alcohol, condensing and redissolving in about 35 per cent alcohol; we are not taking any chances, as it is very prone to decomposition anyway; that is why I first conceived the idea that possibly we might be able to concentrate and finally take up with a menstruum that was miscible with syrup.

MR. SNYDER: When you used 70 per cent menstruum, did you also add hydrochloric acid?

MR. BERG: Yes, when I diluted the condensed extract I used about 120 c.c. of hydrochloric acid.

DR. FRANCIS: That report is very helpful and very suggestive. I might say to Mr. Berg that he is proceeding along just the lines others of us are working on, because we have demonstrated that it takes 70 per cent of alcohol, plus acid, to economically extract the drug. Having completed that operation, the task is to get it into miscible form, which means the removal of the excess of alcohol and subsequent readjustment, and this is where the difficulty lies.

Following U. S. P. Assay Too Strictly

DR. WALTERS: I think I will have to disagree with one or two things that have been said. Just before I left home, I asked them to compile the assays of our crude drug and samples of drug we had received since 1912; that covers, I should judge, by looking at this slip here, at least 150 assays of different lots of ipecac, and while it is not the total, I see that nearly all of them assayed at least two, and most above two per cent.

The analyst who gave me this said it totaled 2.12 per cent as an average, and he said he thought the reason for the lower assays reported by others was due to the fact that, using the U. S. P. method, they followed it too strictly. The U. S. P. method says you should extract it for 2 hours. You cannot extract it in 2 hours; you should extract it until it is completely exhausted. I also disagree with Mr. Berg's statement that the ipecac alkaloid is very easily decomposed; it is quite a stable alkaloid; his loss may be due to the alkaloids being carried down in the precipitate and being held there quite persistently.

Stability of F. E. Ipecac

MR. BERG: In connection with stability, I wish to say that some one in the laboratory preceding me made up 4 samples of fluid extract of ipecac by the present U. S. P. method. They had evaporated the percolate without any particular precaution, and strange to say, this preparation remained in very good condition, there being no precipitate at all. It was made last August. There is another point that might be of some use—that heat prevents possible precipitation.

Regulation of Temperature Important

As regards the assay of fluid extract of ipecac, I think that in the forthcoming revision of the Pharmacopoeia, something should be said about the temperature at which ether is evaporated. It has been proved conclusively that if the beaker or flask containing alkaloids of ipecac is allowed to stand on a steam bath for even a few minutes after the

last trace of ether is gone, the results are considerably lower than if you guard the treatment carefully. In case of possible legal procedure I recall a case while I was in the laboratory of the Surgeon-General's office in Washington, where on second assay we found the liquid to give proper assay results because the temperature was carefully regulated.

DR. FRANCIS: Was that due to the volatilization of the alkaloid or decomposition by heat?

MR. BERG: Presumably it was due to decomposition.

DR. WALTERS: I do not think they would be volatile. When I said they were quite stable, I did not mean they would be so in case of strong heating, but in your previous statement you referred to the alkaloid treated in vacuum, I presume.

Varieties and Alkaloidal Content of Ipecac

MR. SNYDER: Since reporting, I have a most interesting letter from Harper, Stagg and Morgan, of London, England, who, I understand, handle all the ipecac that comes into the country, and I would like to read the letter.

13th March, 1920.

G. L. Marsters, Esq.,

Messrs. The Norwich Pharmacal Company,
Norwich, N. Y., U. S. A.

Dear Mr. Marsters: I take the opportunity of giving you all the information possible on the subject of the various grades of Ipecac Root and their Alkaloidal contents.

As you are no doubt aware, there are three varieties of the Brazilian Ipecac, namely, the Rio, the Minas and the Matto Grosso. The average percentage of total Alkaloid in these varieties is in the neighborhood of two per cent, and of these total alkaloids, on an average of about three-fourths is represented by emetine and one-fourth by pephaneline. Then there is the Malay variety, commonly known as "Johore." The percentage of alkaloids and the relative quantities of emetine and pephaneline are practically identical with the Brazilian Ipecac. Lastly, there is the Columbian variety, commercially known as "Carthagen." In this the pephaneline is generally found in excess of the emetine, being about in the proportions of two-thirds pephaneline and one-third of emetine.

You will gather from the foregoing, that in the case of manufacture of emetine, which is daily becoming more and more used as a medicinal remedy, the Brazilian varieties are most in demand. The Rio, the Minas and the Matto Grosso varieties are better known and more universally used than the Johore.

Very truly yours,

C. R. HARKER, STAGG & MORGAN, LTD.,
ROWLAND STAGG.

Carthagera and Brazilian Drug Compared

DR. FRANCIS: I would like to ask if the Brazilian drug was found to contain more emetine and that cephelene is in excess in carthagera drug?

MR. BERG: About 3 years ago I investigated that, and from my memory I would say that the emetine in all samples averaged about 60 per cent of the total alkaloids. There was more emetine than cephaeline, and we did not find that the carthagera variety had a greater proportion of cephaeline than the rio.

DR. FRANCIS: That has been our experience. We found that, roughly speaking, it is about half and half or maybe 60 per cent emetine and 40 per cent cephaeline, and we did not find that the commercial variety known as rio had any particular advantage over the carthagera, which 3 or 4 years ago was considerably cheaper than the rio. Of course, we do not know what statistics this report from the English house may have been based on.

Accounting for Discordant Assay Results

There is a possibility that some of the discrepancies in the results obtained by different houses in case of both the drug and its preparations, are due to the difference in the processes of assay. The Pharmacopoeia specifies the exact amount of miscible solvent and the exact time, whereas in many cases, even an unlimited time and unlimited amount of immiscible solvent is not sufficient to extract all the alkaloid. One chemist will uniformly get lower results, while some other assayer following common sense and practice, will get very much higher results. It should be remembered that the Pharmacopoeia has a saving clause, in the Preface, to the effect that in extracting alkaloids by immiscible solvents, the treatment should be continued until you get no reaction for alkaloid with test agents.

Are Alkaloids Contained in Entire Plant?

MR. LYNN: In connection with ipecac, I would like to inquire if any one has found out whether the alkaloids are contained in the entire plant to any extent?

DR. FRANCIS: I cannot answer the question further than to say that there has been more or less investigation as to the content of the alkaloid in that portion of the plant immediately above the ground. I believe the conclusion is that the same alkaloids are present but in smaller proportions. I think this is under investigation by the Pharmacopoeial Committee and the Government as well.

MR. SNYDER: I am sure there is some work being done on that question. I think Dr. Jones reported on it, and in the U. S. Dispensatory at the present time there is an article by Dr. Rusby, in which he claims that the greatest percentage of alkaloid is in the root bark and not so much in the woody fibre. We did obtain a bale of ipecac leaves from South America, and while I cannot give the figures now, I shall send them to any who are interested.

DR. FRANCIS: It becomes largely an economic question, as to whether there is enough alkaloid in the proportion above ground, to make it worth while to extract it, but up to the present time no authority has published any exact data on that point. I have attempted, in the past two years, to get a bale of stems cut above ground and within 6 inches of the ground, but up to the present time such material has not been obtainable.

DR. ENGLEHARDT: Mr. Hopkins, I believe, told me that he received from Brazil a sample of ipecac, which contained considerably more than 10 per cent of stems. On assaying the ground sample he found it to contain 2/15 per cent of alkaloids, which would show that the stems contain practically the same amount of alkaloids as the root.

DR. FRANCIS: That is a point that needs to be cleared up in a systematic way, and only by getting the stem portions and comparing them with the roots. We cannot do this under present transportation conditions.

Fluid Extract of Ergot

DR. FRANCIS: The next subject is Fluid Extract or Ergot.

Mr. Snyder reads:

The product of the U. S. P. VIII precipitates upon standing, resulting in an unsightly preparation which has been the cause of considerable discussion. Dr. Francis states that a substance of a somewhat waxy appearance tends to separate upon standing and that the substitution of hydrochloric acid for acetic has resulted in a product which is almost devoid of the characteristic "Beef Extract" odor with which physicians and retail pharmacists have so long been familiar. One experiment that has been made would indicate that the cause of precipitation in fluid extract of ergot is due to the fats present in the drug. The ether extract of several commercial lots of ergot was determined and this found to vary from 15 to 28 per cent, also that fluid extracts made from drugs showing the highest ether extractive gave the largest amount of sediment.

A small batch of fluid extract was prepared, first exhausting the drug with petroleum benzin. This has stood for a period of eight

months and at the present writing is free from the waxlike precipitate of which Dr. Francis speaks. Comparative physiological tests by the blood pressure method indicate that this fluid has the same activity as a fluid extract made in accordance with the U. S. P. IX method from the same drug.

Further work will be done upon this fluid extract along the lines of first removing the fat from the drug and it may be that this is the logical way of eliminating the precipitation.

MR. SNYDER: Of course, that sample is only a small laboratory sample representing about 1,000 grammes; it has not been tried out in a commercial way at all.

DR. FRANCIS: What did you use for extracting the fat?

MR. SNYDER: Petroleum benzine. The idea occurred to me from the manufacture of solid extract of ergot, the present Pharmacopoeia directs that the drug be extracted with petroleum benzine, and when we got this fatty precipitate in the fluid and found the ether extract of the drug to be so high, we tried it out by first exhausting the drug with petroleum benzine.

Eliminating Fat by Chilling

DR. FRANCIS: I may say, as a matter of experience, that you can very largely remove this fatty substance. It is really a heavy fat; ergot contains a liquid fat or oil, and also a heavy fat. Making it by the official process, you can get rid of practically all your fat by chilling it. If the liquid extract is chilled by exposure during winter weather or by ice and salt for a few hours, you can skim off practically all this fatty matter, and it is just a question as to whether that is a cheaper process than previously extracting the drug with purified benzine. Personally I am inclined to favor the chilling method rather than by use of benzine.

Syrup of Hydriodic Acid

MR. SNYDER reads:

This preparation has been the source of trouble because of the development of a dark color. This is caused undoubtedly by the presence of a considerable quantity of sugar which becomes decomposed by the acid. It has been suggested that we endeavor to eliminate this trouble by substituting glycerin for the sugar. It later, however, developed that a most atrocious odor would present itself if glycerin was used and that, on this account, it is not considered advisable to use it.

Further investigation shows that the syrup, when stored in a cool place, keeps much better and it is the recommendation of the committee that a more united effort be made to have pharmacists freshly prepare

the syrup in small quantities from the concentrated hydriodic acid which practically all of the firms supply rather than to continue to sell them syrup of hydriodic acid, which will probably darken with age, particularly if it is allowed to stand for any length of time in a warm place. It is furthermore the opinion of the committee that it would be wise for the U. S. P. 10th revision to contain the statement that syrup of hydriodic acid U. S. P. should be made in small quantities as needed and stored in a cool place.

Flint Bottles to Preserve Color

MR. HOSKINS: I wonder whether Mr. Snyder kept the solution in an amber-colored bottle or sitting in the light?

MR. SNYDER: Prof. Patch made that recommendation and I did not do the work myself.

MR. HOSKINS: I have noted that where it is kept in a flint bottle we had very little trouble with our 10 per cent solution, but if it is put in an amber bottle, it would turn black.

Hypo-phosphorus Acid to Clear Color

A MEMBER: We have just received 25 pounds from our good friends, Powers & Weightman, and when I opened it, it was black. We do not find any fault with it, we just cleared it up with a little hypo-phosphorus acid. What is in it has got to come out, that is all.

MR. SNYDER: I think that is legitimate, because in the present U. S. P. method of manufacturing the dilute acid hypo-phosphorus acid is used.

The Odor Imparted by Glycerine

DR. FRANCIS: I would like to ask some chemical expert to explain to me the reaction that takes place when hydriodic acid is brought in contact with glycerine that results in such a horrible odor and such a variety of odors? Have any of you had that experience?

A MEMBER: Oh, yes, I think I can recollect some time ago when I was on the Committee to make that test for glycerine, to select those that should not give an odor with hydrodic acid. The fact is that not only hydriodic acid, but any acid, even tartaric or sulphuric acid, will do the same thing.

DR. FRANCIS: Is it not due to the presence of some foreign substance in the glycerine?

MR. SNYDER: It is probably due to the presence of some foreign substance in the glycerine. It has been suggested that it is due to some polyglycerite.

DR. FRANCIS: No two glycerines will give you the same result and the same odor.

MR. SNYDER: No, but the presence of polyglycerite has been advanced as a possible explanation.

DR. FRANCIS: Up to the present time the discussion seems to indicate that we are confronted by a very lamentable condition, for which there is no remedy. Dr. Snyder made mention that druggists prepare small quantities of syrup by the use of dilute acid. The question as to how the dilute acid can be prepared and kept for an indefinite length of time, is still an open question. Are there any further comments on this topic?

Purified Extract of Glycyrrhiza

Mr. Snyder reads:

Some trouble has been experienced with the preparation due to it developing a fungus growth which renders it unfit for use. Professor Patch points out that there is no uniformity in commercial products. He finds the moisture contained in market samples to vary from 25 to 54 per cent and, furthermore, that the softer extracts, upon keeping, show a greater tendency to mold. Professor Patch feels that a moisture standard of not more than 30 per cent is desirable.

The addition of sodium benzoate has been suggested, but Dr. Francis points out that this substance is not a germicide or fungicide in the presence of alkali and that extract of glycyrrhiza purified contains ammonia. A very logical suggestion has been offered to sterilize the finished cans or jars by placing them into an oven and heating at the proper temperature for a few hours.

Tendency to Grow Fungus

DR. FRANCIS: In discussing this question, I was rather surprised to receive a letter from one of my very good friends in the pharmaceutical business to the effect that his firm had never experienced any difficulty with the extracts in a jar or can. I thought it was a remarkable statement then, and I think it is remarkable now, because I have always looked upon that as being the peculiar thing about this extract that unless it had some kind of preservative in it, it would grow fungus. What has been the experience of you gentlemen in purifying the extract of licorice? Is it not a trouble maker on account of its tendency to grow fungus.

MR. PROCTOR: We practically dropped it from our list for the reason, that we could not keep it free from mould.

MR. SNYDER: We have had a great deal of trouble with it and have thrown lots away on account of the moulding.

DR. FRANCIS: There are three of us at least who have been up against this trouble. I wonder if there are any others?

DR. ENGELHARDT: I know the manufacturer Dr. Francis is referring to, and the letter Dr. Francis has written was referred to the gentleman who makes extract of licorice. I don't make it myself, but I know that they use a certain process by which they get a product which answers the requirements of the pharmacopoeia, but apparently is free from pectins, albuminoids and all those substances which favor the growth of moulds.

U. S. P. Processes Need Not Be Used

DR. FRANCIS: It should be remembered that a product can be manufactured by any process, so long as the finished products meet the requirements.

MR. STOFER: Is the definition which you have just stated thoroughly understood among manufacturers, namely, that a product which in its finished state complies with every test of the Pharmacopoeia, is considered an official preparation, even though there is a U. S. P. process given?

MR. MERRELL: I think that is stated in the Pharmacopoeia.

DR. ENGELHARDT: In this connection I would like to ask how many manufacturers do extract with acid? They could do it only in acid-proof percolators.

DR. FRANCIS: I, for one, can answer that question by saying we do that and use wooden percolators. However, that is beside the question. The doctor is entirely correct, it is entirely proper to use any process you choose, so long as the product answers the official requirements.

Half Strength Fluid Extracts

Dr. Snyder reads:

Considerable has been written and said about the advisability of the U. S. P. 10th Edition, replacing the present fluid extracts with half strength fluid extracts, for which Professor Patch submits the name "Demisola" (half solutions).

Half Strength Extracts Pro and Con

The committee so far do not agree upon the addition of these. The points in their favor are that the preparation would only be required to

hold in solution half the quantity of extractive that the present fluid extracts do and, therefore, they would not be so prone to precipitate; also they would ultimately displace two lines of liquid solutions of drug activities by one.

The points against are that their addition will necessitate the education of the entire medical profession to their use. They are not economical in space as the fluid extract. They would involve a greater investment in alcohol. The patient would be called upon to consume twice the amount of alcohol in order to obtain the same dose of the therapeutic agent that is at present contained in the fluid extracts. They would necessitate an additional investment of capital for both the manufacturer and retail druggist, which at the present cost of alcohol might prove quite a burden.

Since this is a subject so important to the members of our association and one which will, we believe, be discussed to considerable lengths upon the floor of the U. S. P. convention, it may be wise to openly discuss the question at the Scientific Meeting and perhaps present a resolution to the association, together with our reasons for favoring or disapproving of half strength fluid extracts.

DR. FRANCIS: Gentlemen, this is a subject that I do not think we can allow to pass without a very positive expression of opinion, because we are supposed to represent the greater number of producers of such preparations in the United States. If we are not prepared to make a positive recommendation or expression of opinion on this subject which concerns us so closely, it seems to me that no one is.

MR. PROCTOR: The thing which comes to my mind is this: if we were to advocate a product that could be made by the tincture method, where we did not have to make a second run distillation, and go through the fluid extract process, they would seem more rational to one, but I think it is well recognized that the average botanical drug requires three or four times its weight of solvent for extraction, so in making a half strength preparation, it would be impossible to make it by any other method than that of the fluid extract.

DR. FRANCIS: Prof. Proctor, I would like to ask you, in this connection, whether you could manufacture a full line of half strength fluid extracts without resorting to the production of a second percolate to be condensed?

MR. PROCTOR: No, I think it would be quite impossible. I believe it would be safe to state that the average botanical drug, even if properly milled and packed in the percolator, would require three to four times its weight of solvent to effect the solution.

DR. FRANCIS: That would really be a loss then?

MR. PROCTOR: I think so.

A MEMBER: There are several fluid extracts that can be made with water, like cascara and a few more. I think some of the experiences that people have in not having fluid extracts that assay free strength is that they are not properly extracted.

Are Fluid Extracts Dying Out?

Another thing you want to consider is how many of you will sell as many fluid extracts pro rata in proportion to the increase of your business as you sold ten years ago? This is a class of preparations that is gradually dying out of itself, except one or two.

Economic Disadvantages of Half Strength Extracts

MR. MERRELL: It seems to me that whatever the desirability may be of the semi-strength fluid extracts, that in the present state of the alcohol situation we are precluded from going into any move of that kind, from an economic standpoint alone. As compared with full strength extracts, we are simply wasting one-half of the alcohol that we now use and using twice the amount of alcohol that we should use, and that certainly will not reduce the cost of living.

MR. STOFER: I quite agree with Mr. Merrell. It is an economic mistake today to attempt to broaden the line, which we surely will have to do, because in addition to the half strength fluid extracts, it would be necessary to carry the full strength fluid extracts at least until the physician became educated. Second, in view of the conditions governing the handling and manipulation of alcohol, it is radically wrong to employ a large bulk of alcohol for a lesser-strength product. We should go on record upon this subject. Every member should adhere to the principle that this, at least, is not the time to follow any fads and fancies and attempt to go through the expensive process of spreading propaganda in introducing a line, the ultimate value of which is indeed questionable.

DR. FRANCIS: I was just wondering if all of us were going to omit the point brought out by Mr. Stofer, and that is the influence of conservatism which, of all forces in the world, is the strongest, barring, perhaps, the force of gravity. The medical profession and the drug trade of the world have 100 years or perhaps 200 years of constant usage behind the system of tinctures that are now in vogue. Any attempt to wean the medical profession from the prescription of tinctures would be like trying to dam Niagara, it would cost the retail drug

trade of the United States and the manufacturers ten million dollars and then would not accomplish anything.

Why Use of Fluid Extracts Is Decreasing

Fluid extracts are probably decreasing in quantity every year. That is not a matter to be regretted and is very easily traceable to the fact that with the multiplicity of laws governing the strength of drug preparations and the purchase and sale of alcoholic preparations, that the retail drug trade is playing safe; they are no longer making their tinctures but are buying tinctures and the doctors are prescribing more tinctures and less fluid extracts.

Motion Disapproving Half Strength Extracts

It would be a losing game and a useless expense to add a third line. I would like to entertain a motion from some one advocating that our Executive Committee address the proper authorities, placing our association on record as being unalterably opposed to the addition of any line of preparations such as this which has been suggested, namely, a half strength fluid extract, or anything varying materially from the well-known tinctures and fluid extracts now in vogue.

MR. SNYDER: I would like to make such a motion and include our reasons for the stand we take on it.

Motion seconded.

DR. FRANCIS: Are there any present who would like to argue in favor of this kind of preparation? We do not want to convert you by force if you believe in the half fluid extract.

The motion was adopted.

Future Work on Drug Extracts

MR. SNYDER: That is the preparations we have done any work on. The following is a list of the preparations sent in to us by the various members.

Fluid Extract Glycyrrhiza.....	Activity weak and preparation hazy.
Fluid Extract Senna.....	Precipitation.
Fluid Extract and Tincture Canthar-	
ides	Unsatisfactory menstrum.
Compound Syrup Squills.....	Preparation hazy.
Fluid Extract Hydrastis.....	Precipitation.
Warburg's Tincture N. F.....	Preparation hazy.

Tincture Sanguinaria	Preparation unsightly, tends to persistent precipitation.
Syrups and Elixirs containing acids and sugar	Replacement of the sugar with Glycerin.
Fluid Extract of Horse Nettle Berries.	Precipitation.
Tincture Cardamon Comp.....	Variation in color.
Extract of Ergotin Bonjean.....	Deficient in activity.
Oleate of Mercury.....	Difficulties in manufacture.
Elixir Glycero Phosphate Comp.....	Separation of a crystalline compound.
Syrup of Iron Quinine and Strychnine.	Precipitation.
Syrup of Phosphates Comp. and Syrup of Phosphates Comp. with Muriate.	Unsatisfactory preparations.
Solution Albuminate Iron.....	Muddy.
Ointment of Belladonna.....	Unsatisfactory base.
Syrup Wild Cherry.....	Not permanent.
Fluid Extract Cascara Aromatic U. S.	Addition of glycerin considered an unnecessary expense.
Elixir Terpin Hydrate and Codeine....	Turns yellow.
Syrup Hypophosphites	Develops a fungus growth.

U. S. P. and Preparations Classed as Beverages

A MEMBER: There is one there that the Government has eliminated, compound tincture of cardamom.

DR. FRANCIS: That is now placed in the list of beverages, but it is not eliminated because the manufacturers can produce it as heretofore, it only being necessary that any order shall be accompanied by a permit number from the buyer and that it be supplied in quantities of five gallons.

MR. SNYDER: In that connection, what do you think the Pharmacopoeial Revision Committee is going to do with the list of preparations that the Government has stated are fit for beverage purposes? Do you think they will eliminate entirely or modify them?

DR. FRANCIS: I happen to know that a communication has already been sent to the Pharmacopoeial Revision Committee urging that a committee be specifically appointed to consider alcohol in official preparations, and also as to what disposition can be made of those official preparations that have been placed in the beverage list or are likely to be placed in the beverage list, so that they will receive special attention.

GLYCERIN FOR SUGAR IN ELIXIRS

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

DR. FRANCIS: I would like to have a little discussion on one topic which is considerably broader than the rest, and that is the advisability or nonadvisability of trying to gain some action on the part of the Revision Committee of the N. F. and U. S. P. to eliminate, in so far as possible, those elixirs which contain very notable proportions of acid, more especially those which not only contain acid, but salts of iron, it being well known to all of us that where acid is associated with sugar syrups, it only requires the lapse of a few months to have a breakdown of the sugar which may even go so far as to result in almost actual caramelization.

That process is tremendously hastened by the presence of the iron salts, so it has occurred to us to suggest that while the term elixirs is easily taken to mean an admixture of alcohol aromatics and sugar syrup, we might overcome our conservatism to the extent of almost converting these into glycerides; in other words, substituting altogether, or in a very large measure, glycerine for sugar.

A MEMBER: I think it would be a good thing to use glycerine instead of sugar.

DR. FRANCIS: We must consider this as a broad subject that will prevail in future years. We must consider the matter of stability, something to prevent the loss of the stock and deterioration.

Stability of Glyceroles

MR. PROCTOR: The syrup I. Q. & S. phosphate of the Pharmacopoeia was made from a glycerol. We have always been unable to make a permanent glycerol. A glycerol would not spoil as quickly, but would sooner or later. That may have been because we did not have the correct form of glycerol. Is there an assurance that glycerols will overcome the difficulties? My experience is confined only to the one containing iron.

Odor Produced by Glycerin in Presence of Acid

MR. ROSIN: You have mentioned that these preparations contained acid. Glycerin in presence of an acid, as I have stated before, usually gives an unpleasant odor. Tartaric acid, in my experience, has also developed an offensive odor with glycerin.

DR. FRANCIS: If that is true, it may, in many instances, prove a fatal objection.

MR. SCHULTZE: In Elizir Gentian Compound Glycerinated, we have Phosphoric Acid and this preparation develops a slight odor after standing sometime, but I have never heard it considered at all offensive. We make the elixirs of the Green Iron Salts, all of which have an acid reaction, with the use of Glycerin and I have never noticed any disagreeable odor in them, even after several years time. They are also very permanent as to color.

Glycerin as a Satisfactory Substitute

DR. FRANCIS: I would like to ask in how many elixirs or similar preparations you have used the glycerine instead of sugar?

MR. SCHULTZE: This includes Iron Phosphate, Quinine and Strychnine; Calisaya, Iron and Strychnine; Iron (Citro-chloride) Quinine and Strychnine and several others. Our experience with Glycerin in this connection has been very satisfactory.

Proposed Research on Glycerin Elixirs

MR. SNYDER: In most of those cases there is enough aromatic principles added to cover any slight odor. I have seen some quite sad cases in syrup of hydrophosphite compound in which we get a very low percentage of alcohol and quite a lot of sugar, the preparation on standing developing a fungus growth. I do not know whether anybody else has had that trouble or not. I know one firm reported to the committee that they had experienced the same difficulty.

DR. FRANCIS: That is when it is made with a sugar base?

MR. SNYDER: Yes.

DR. FRANCIS: Should we let this thing rest, or request a committee to make up a complete series of such glycerine elixirs and hold them under observation for six months or a year and report again, and perhaps in the meantime bring the matter to the attention of the Revision Committee of the U. S. P.?

MR. SNYDER: I have an iron quinine and strychnine phosphate made up replacing the glycerin with sugar, and also the addition of a small amount of saccharine to compensate for loss in sweetening power that has been standing about a month and is in excellent condition at the present time, but a month's standing is hardly sufficient for me to make any definite recommendation.

DR. FRANCIS: The example that has been offered of a glycerinated compound is a very good one, and nearly all of us made that

and did it successfully. My remembrance is that it contains 40 or 50% of glycerine.

We want to consider the substitution, insofar as practical, of glycerin for sugar in the manufacture of elixirs. My advice would be that we do not put ourselves on record, by making a formal recommendation, but that this matter be left in the hands of the committee with the direction that they carry out a complete series of experiments during the next year, and that during the year, if their results warrant it, to take the matter up directly with the Revision Committee. In the meantime they can make the report to us in due season at our annual meeting next year.

Addition of Saccharine as a Sweetener

MR. SNYDER: In that connection I would like to get an expression of opinion from the section here as to what they think of the addition of saccharine, if necessary, as a sweetener? In the present Pharmacopoeia, under manufacture, of Fl. F. cascara aromatic, it is used; so it would not be an entirely new thing to the U. S. P. committee.

DR. FRANCIS: Gentlemen, do you see any reason why, in the manufacture of these elixirs, or in similar preparation, saccharine should not be used to such an extent as may be necessary? I take it for granted it would be entirely proper, provided it is kept within reasonable bounds.



ZINC OXIDE OINTMENTS

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

DR. FRANCIS: We have the statement of one gentleman that he is in favor of adopting the petroleum base for zinc oxide ointments. I am a great advocate of that, because I am convinced that in an ointment of that kind, which is not intended to be absorbed, petrolatum is superior to lard, tallow or any similar mixture of vegetable or animal fats.

It may be that some of the other gentlemen here have very different views, and I would not like to take the responsibility of putting this section on record as making such a recommendation unless they want to; if, however, you want to bring that matter to a vote, some one might offer a resolution to the effect that it is the sense of the Scientific Section that it is advisable for the Pharmacopoeia to delete zinc oxide ointment as made at the present time and substitute therefore a similar ointment with a petroleum base of proper consistency.

A MEMBER: I will offer that resolution. (Motion seconded.)

DR. FRANCIS: Before we vote on this, I would like to know if any of you are wedded to the old formula?

MR. SNYDER: Our experience has been that it is necessary to make two formulas, and I know we make four or five times as much of a modification as we do of the U. S. P. so there must be a demand among retail druggists for the petrolatum base ointment rather than that of the U. S. P.

A MEMBER: The firm I am connected with make only one, and that is the one I am advocating here.

MR. HOSKINS: I would say that we make both of them, but, as Mr. Dugan says, it is nine parts of his formula and one part of the U. S. P., and not only that, it is a very much better preparation to put on the market and it keeps better, you do not have the trouble the U. S. P. preparation gives.

DR. FRANCIS: All in favor of sending such an expression of opinion to the Revision Committee, will say aye. Opposed, no. It is carried.

ALKALOID AND DRUG STANDARDS

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

Report of the Subcommittee

The following program was offered and submitted to the members of this subcommittee—Messrs. White, Eldred, Kilmer, Parker, Ulen, Austin and Murray:

1. Establish standard of purity and identification for Arecoline hydrobromide.
2. Establish standard of purity and identification for Coniine hydrobromide.
3. Establish standard of purity and identification for Eserine sulphate.
4. Establish standard of purity and identification for Hyoscyamine sulphate.
5. Establish standard of purity and identification for Morphine bimeconate.
6. Establish standard of purity and identification for Picrotoxin.
7. Establish standard of purity and identification for Digitalin.
8. Establish standard of purity and identification for Procaine.
9. Assay process for Sparteine sulphate.
10. Revision of test for Cephaeline in Emetine hydrochloride.
11. Rectification of relative standards of Ipecac and Fluidextract Ipecac.
12. Change of Kerner's test for Quinine sulphate.
13. Revision of assay process of Cinchona Bark.
14. Assay process for Pomegranate Bark.
15. Assay process for Mandrake Root.
16. Adoption of standard for Squill and its preparations.
17. Cantharides Assay.

This gave them seventeen topics to select from. The result has been a report upon (1) Arecoline hydrobromide, (2) Coniine hydrobromide, and (3) Physostigmine sulphate, with proposed tests and text by Mr. Murray.

Physostigmine Sulphate (Eserine Sulphate)



A white, or yellowish-white, odorless powder. It is very deliquescent, and gradually turns reddish by exposure to air and light. Very soluble in water, alcohol and chloroform; slightly soluble in ether. Its aqueous solution is neutral or acid to litmus paper.

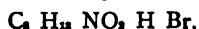
When thoroughly dried over sulphuric acid the salt melts at about 140°C ., usually softening several degrees below this temperature. On ignition of 0.2 gm. no weighable residue is left.

Barium chloride T. S. produces in an aqueous solution of the salt a white precipitate, insoluble in hydrochloric acid. An aqueous solution of physostigmine sulphate yields, with alkalis, a white precipitate, which quickly turns pink, and dissolves in an excess of the alkali, forming a pink or red solution, which soon fades to yellowish-green. A solution of the salt (1 in 20) does not assume a deep violet color on adding a drop of ferric chloride T. S. (distinction from physostigmine salicylate).

Sulphuric acid containing a crystal of potassium iodide, on being added to a little of the salt, gives a light purple color, immediately changing to yellowish-red.

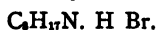
If 0.005 gm. of the salt be dissolved in fuming nitric acid, a yellow solution results, which, on being heated, changes to an orange-color, then to blood-red, and, on evaporation to dryness, yields a green residue. When exposed to the fumes of the nitric acid, this residue becomes a violet-blue, and when a drop of the acid is added to it, it forms a reddish-violet solution, which soon changes to blood-red and finally on standing, or on dilution, becomes greenish-yellow. (Adapted from U. S. P. VIII.)

Arecoline Hydrobromide



Small white crystals or a white powder, easily soluble in water and in alcohol, difficultly in ether or chloroform. The aqueous solution (1 in 20) is neutral or slightly acid to litmus paper. The aqueous solution of the salt (1 in 10) is not precipitated by platinum chloride T. S., tannic acid T. S., or potassium hydroxide T. S. With silver nitrate T. S. it yields a yellowish-white precipitate, with iodine T. S. a brown precipitate, with bromine T. S. a yellow precipitate and with mercuric chloride T. S. a white precipitate, soluble in excess of the reagent. Arecoline hydrobromide after being thoroughly dried over sulphuric acid, melts between 169° and 171°C. Upon ignition of 0.2 gm. no weighable residue remains. (Adapted from Ph. G. V.)

Coniine Hydrobromide



Colorless crystals or a white powder, odorless when dry but acquiring an odor of coniine when heated, rubbed or exposed to moist air. It is soluble in about 2 parts of water and in about 3 parts of alcohol; readily soluble in chloroform but insoluble in ether. The aqueous solution (1 in 10) is neutral to litmus. With silver nitrate

T. S. it yields a yellowish-white precipitate and with iodine T. S. a reddish-brown precipitate. With sodium hydroxide Y. S. a separation of oily drops (coniine) occurs and on heating the mixture the vapors evolved are alkaline to litmus paper. Coniine hydrobromide melts between 210° and 212°C. On ignition of 0.2 gm. no weighable residue is left. (Adapted from French Codex 1908.)

Assay of Cinchona Bark

Revision assay of Cinchona Bark by F. J. Austin and A. R. L. Dohme. Comparison was made between the U. S. P. and the Fromme or hydrochloric acid method of assay and the results follow:

	<i>U. S. P. grav.</i>	<i>U. S. P. vol.</i>	<i>Hydrochloric</i>	<i>Hydrochlor.</i>
			<i>Acid method grav.</i>	<i>vol.</i>
Austin F. J.....	5.00% alk.	4.63% alk.	5.65% alk.	4.40% alk.
Austin F. J.....	5.23% alk.	4.67% alk.	5.70% alk.	4.46% alk.
Austin's assistant	5.69% alk.	4.62% alk.	5.47% alk.	4.26% alk.
Austin's assistant	5.62% alk.	4.80% alk.	5.53% alk.	4.25% alk.
Dohme A. R. L.....	6.12% alk.	solution too	5.5 % alk.	5.1 % alk.
Dohme A. R. L.....	6.15% alk.	dark to titrate	5.3 % alk.	5.25% alk.

This indicates that the hydrochloric acid method gives more concordant results gravimetrically which is of moment; also that the U. S. P. is difficult to titrate because nearly always too highly colored which is a disadvantage for the U. S. P. method and finally that it needs more work to establish that the products of the HCl process are practically pure alkaloids in that the volumetric result is practically the same as the gravimetric result. To be sure Mr. Austin and his assistant did not get this result, but I have gotten it frequently and I, therefore, think further work by more operators is necessary to decide this point. To my mind the hydrochloric acid method of Fromme is simpler, shorter and better than the present U. S. P. method.

The bark was examined by the U. S. P. process and by the process of the Swiss Pharmacopoeia, which is a modified Fromme process. 2.5 gms. of the bark is heated in a water bath for 15 minutes with 5 c.c. of diluted hydrochloric acid and 17 c.c. of water. After cooling, 50 c.c. of ether and 25 c.c. of chloroform are added, followed by 6 c.c. of caustic soda solution. The mixture is shaken continuously for half hour. Sufficient tragacanth is then added to eliminate the water and after complete clearing has taken place, 60 c.c. of ethereal liquid is filtered, shaken out with acid in the usual way, the acid solution

is then made alkaline with ammonia and the alkaline solution is shaken out with several portions of chloroform. The combined chloroform solutions are then distilled and the residue is dried at 105° to constant weight. It is then taken up in 10 c.c. of neutral alcohol and after the addition of 3 drops of methyl red solution and 10 c.c. of water the liquid is titrated with n/10 hydrochloric acid. Each c.c. of acid used corresponds to .0304 gm. of cinchona alkaloids. The Swiss Pharmacopoeia directs that hematoxylin solution be used as indicator but we found that methyl red gives a more distinct color-change and we have, therefore, applied this indicator.

Pomegranate Assay of Dohme and White

Assay process for Pomegranate Bark by Dohme and A. J. White. This drug is assayed in the German and Swiss Pharmacopoeias and containing alkaloids and possessing some therapeutic value appeared worthy of study for standardization. In the foreign pharmacopoeias they recognize the use of the bark of the root which is richer in alkaloids than the bark of the twigs or tree, which is what was used in the assays recorded here and sent me by Dr. A. J. White, who supplied the material. The principle is the same, however, and if the method works well for the one it will very probably do so for the other.

	<i>German Pharm.</i>	<i>Swiss Pharm.</i>
Dohme	0.213 % alkaloids	0.146% alkaloids
Dohme	0.230 % alkaloids	0.120% alkaloids
White	0.2075% alkaloids	.....

This indicates that the process of the German Pharmacopoeia is better which is probably due to loss by volatilization of some volatile alkaloids in the evaporation of the ether in the Swiss Pharmacopoeia process. The German Pharmacopoeia process works very well and gives concordant results.

Assay of Pomegranate According to the German Pharmacopoeia

12 gms. of the powdered bark is shaken with 120 gms. of ether and after the addition of 10 c.c. of a mixture of equal parts of caustic soda solution (15%) and water, the mixture is allowed to stand with frequent shaking for three hours. After allowing to clear, 80 gms. of the ethereal solution (equal to 8 gms. of the bark) is filtered and half of the ether is driven off at moderate temperature. The residue is then transferred to a separator, the flask washed three times with 5 c.c. of ether, which is added to a separator, and the combined

etheral solutions are shaken out with 10 c.c. of 1 per cent hydrochloric acid. The acid solution is then transferred to another separator and the ethereal solution is shaken twice more with 5 c.c. of hydrochloric acid of the same strength. The combined acid solutions are then made alkaline with sodium carbonate solution and are shaken with 5 c.c. of chloroform for 2 minutes. After complete clearing the chloroform is drawn off and the alkaline solution is shaken out with three more portions of each 5 c.c. of chloroform to the combined chloroformic solutions 4 c.c. of $n/10$ hydrochloric acid and 40 c.c. of water are added and so much ether as to make the chloroformic-ether mixture specifically lighter than the aqueous solution and the mixture is shaken for two minutes. The acid solution is then filtered through a small wetted filter and the ethereal mixture is shaken out with ten portions of each 10 c.c. of water which are also filtered through the same filter. The excess of acid is then titrated back in the usual way. Each c.c. of $n/10$ corresponds to .0148 gms. of total alkaloids.

Assay of Pomegranate According to the Swiss Pharmacopoeia

12 gms. of the bark are extracted as before and aliquot part of the ethereal solution is evaporated to about 15 c.c., mixed with 10 c.c. of water, 5 c.c. of absolute alcohol and 3 drops of hematoxylin solution and the liquid is then titrated with $n/10$ hydrochloric acid until a red-brown color is produced; then 30 c.c. of water and more acid is added until a lemon-yellow color is produced. Each c.c. of $n/10$ hydrochloric acid corresponds to .01475 of alkaloids.

Mandrake Assay by Dohme and White

Assay process for Mandrake Root by White and Dohme—Podophyllum and Podophyllin its resin will always remain of importance as drugs and being used in a large way seem to demand an official assay method and standard. Therefore, both a percolation and an aliquot part method of extraction and assay are given with the result better by the percolation assay than by the aliquot part assay.

	<i>Percolation method</i>	<i>Aliquot part method</i>
Dohme	3.58% resin	2.78% resin
Dohme	3.52% resin	2.65% resin
White	3.55% resin	3.48% resin

Assay of Mandrake (percolation method)

The sample submitted was assayed by the method offered by Mr. White and also by the following method. 10 gms. of the drug was

placed into a narrow percolator and allowed to stand with 50 c.c. of alcohol for 48 hours. The percolation was then carried out in the usual way, using 150 c.c. of alcohol altogether for the extraction. The alcoholic solution was then evaporated to dryness, and the residue taken up in about 100 c.c. of water acidulated with hydrochloric acid. The mixture was gently warmed in order to facilitate distintegration of the varnish-like precipitate and after stirring well and allowing to cool, the podophyllin was collected on counterpoised filters, washed well with water and dried at 105° to constant weight.

Assay of Mandrake (aliquot part method)

13 gms. are macerated over night (or longer if the drug is coarse) with 130 mls of absolute alcohol. Then 100 mls (10 gms. drug) are filtered off and concentrated in a tared beaker to a syrupy consistency. 50 mls of distilled water, acidulated with hydrochloric acid are added to the concentrated extract and the beaker cooled under running cold water. The less water used the less fine the ppt. After a while, when the last trace of alcohol is evaporated, the ppt. podophyllin is collected on tared, counterpoised filters; the container in which the podophyllin was ppt't, and the ppts. on the filters are washed well with water and dried at 100°. The weight of the residue remaining in the beaker is also obtained and added to the weight of the podophyllin on the filter.

Cantharides Assay by Kilmer and L. Dubois

The method of the United States Pharmacopoeia has, to numerous workers, seemed to be unsatisfactory for various reasons. A glance at the U. S. P. process will leave no doubt that it is a very difficult and troublesome procedure, including the digestion carried at 40 C for three hours, with frequent shaking; subsequent evaporation to about five mls, and the addition of chloroform to prevent crystallization. It also involves a mixture of solvents benzene and benzine, dehydrated alcohol and benzine.

In the U. S. P. assay method, Mr. Louis DuBois of the Johnson & Johnson laboratories has evolved an assay method based upon the Baudin Method given in Sadler's and Coblentz's *Pharmaceutical Chemistry*, Vol. 2, page 226, modified only so as to make it a complete extraction method, instead of an aliquot portion method.

Assays run on two different lots of cantharides according to the methods above mentioned gave the following results:

First Lot:

U. S. P. Method 0.71% free and combined cantharidin.
Author's Method 1.17% free cantharidin.

Second Lot:

U. S. P. Method—(a) 0.56% free and combined cantharidin.
(b) 0.57% free and combined cantharidin.

Author's Method—(a) 0.795% free cantharidin.
(b) 0.810% free cantharidin.

Baudin's Method—(a) 0.789% free cantharidin.
(b) 0.753% free cantharidin.

Author's Method Modified—(a) 1.73% free and combined cantharidin.
(b) 1.77% free and combined cantharidin.

It is to be noted that in the U. S. P. method lower results both for the combined and free cantharidin were obtained than by the DuBois Method, or the original Baudin Method, and the resulting crystals were not as satisfactory as by either of the other methods. The crystals obtained by the U. S. P. Method assay method are dark and resinous. The U. S. P. makes no reference to the presence of both free and combined cantharidin, but the assay given is for both the free and combined; hydrochloric acid being added to liberate the combined cantharidin. There does not seem to be any published statement as to whether the combined cantharidin has any blistering effect when applied to the skin. It has been assumed that the blistering effect is due to free cantharidin alone, when the powdered cantharidin is used as an ingredient of a blistering plaster. This would also seem to be true from the fact that in the official tincture no attempt is made to liberate the combined cantharidin before making the alcoholic extraction. On the other hand acetic acid has been incorporated in the formulas of the other two official cantharidin preparations, Ceratum Cantharides and Collodium Cantharidum.

Recommended Revision of the U. S. P. IX, Assay of Cantharides

U. S. P. Text

Introduce 15 gms. of cantharides, in No. 40 powder, into a stout bottle of not less than 250 mils capacity.

Recommended Text

Weigh out 10 gms. of finely powdered cantharides, in an Erlenmeyer flask of about 120 mils capacity.

Add 150 mls of a mixture of benzene, 2 volumes, and purified petroleum benzin, 1 volume, and then add 2 mls of hydrochloric acid.

Stopper bottle tightly, shake it well, and allow it to stand about 10 hours.

Now gradually warm the bottle and its contents to about 40° C. and maintain it at that temperature with frequent shaking during three hours.

Cool the mixture, decant or filter off 100 mls of the clear solution and evaporate this rapidly in a tared beaker or widenecked flask to a volume of about 5 mls.

Now add 5 mls of chloroform to the residue and set it aside in a moderately warm place.

When the solvent has all evaporated, add to the crystals 10 mls of a mixture of equal volumes of dehydrated alcohol and purified petroleum benzin, which has previously been saturated with pure cantharidin, allow the mixture to stand during 15 minutes and then decant the liquid through a pellet of purified cotton.

Wash the crystals with successive portions of a saturated solution of cantharidin, similar to that directed above, until it is free from fat and coloring matter, and pass the washings through the same pellet of purified cotton.

Then wash the cotton with a very small quantity of warm chloroform to dissolve any adhering crystals, collect the chloroform in the tared flask or beaker containing the washed crystals with the aid of a blast of air.

Add 30 mls of chloroform.

Stopper flask and allow to stand over night.

Then shake frequently during several hours.

Pour upon a filter and wash with 70 mls of chloroform.

Evaporate the percolate in a porcelain capsule on a water bath, until free from chloroform.

Add 5 mls of carbon bisulphide to the residue and transfer to a small tared filter paper, 4 cm. in diameter.

Rinse capsule and filter with 10 mls of carbon bisulphide in small portions.

Dry the crystals at 60 C. for one-half hour and weigh.

Dry at 60 C. and weigh.

The resulting weight will be the amount of cantharidin obtained from 10 grms. of cantharides.

Add 0.10 gms. to the weight obtained for the solvent action of the 15 gms. of carbon bisulphide. The resulting weight represents the free cantharidin in the cantharides taken. To obtain both the free and combined cantharidin add 2 mls of hydrochloric acid to the original chloroform.

It would seem that we have in this report some material for discussion and for consideration by the Pharmacopoeial Revision Committee. I had hoped that some members of this subcommittee would have taken up topic 16—Squill assay and standard, because it is important and has a future. Might I suggest that Squill as to assay physiological and chemical and also as to standard as well as therapy be made a special study by this section for next year. This would mean that it be made the subject of a subcommittee of its own.

Respectfully submitted,

A. T. L. DORME, Chairman

Discussion of the Report

Assay of Mandrake

DR. ENGLEHARDT: In regard to this report, I would like to ask the members a question; there are two methods mentioned. One method is: percolating mandrake with alcohol and then precipitating the filtrate after evaporation with acidulated water. This method gave considerably higher results, as shown in the report, than when mandrake is shaken with alcohol in a mechanical shaker continuously for 10 hours, then filtering an aliquot part of the alcoholic solution and proceeding as before. Such results were obtained not once but half a dozen times. I cannot very well understand this, because it stands to reason that when applying a percolation process the results are liable to be lower on account of channels which may be formed, preventing a complete exhaustion of the drug. You gentlemen, have probably had a similar experience and are in a position to explain this discrepancy.

DR. FRANCIS: Did you take into consideration the fact that your mandrake samples from time to time contained various proportions of water? 80% alcohol does not extract mandrake in the same proportion as 85% or 90% or 95%, so that your drugs, in the first place, should be reduced to a uniform content of moisture. There is another point worth bearing in mind in this matter, and that is, it is more sensible to take a dehydrated mandrake drug, thoroughly extract it by 95% excess of alcohol, take an aliquot portion of filtered solution precipitate and fibre by suction pumps, and finally dry in a dessicator. You will find it makes a profound difference if your water is ice cold or at ordinary room temperature; in fact, it will increase your proportion of resin 25 or in some instances 50% according to whether your water is ice cold or 70 degrees, aside from that, this process is so crude that nothing is to be gained by an elaborate method of making alcoholic extract subsequent to precipitating water.

DR. ENGLEHARDT: It varies if you do not reduce the alcoholic solution to dryness. The slightest variation upsets the results.

DR. FRANCIS: The method I have always used was to extract 10 grams of drug with 100 c.c. of 90% of alcohol with a mechanical shaker overnight, then filter off an aliquot portion of this, evaporate it in air bath, then finish the evaporation in vacuo, re-dissolve this in alcohol, filter and evaporate the alcoholic solution. We always find a residue of insoluble matter from the alcoholic solution left behind on the filter paper, amounting to two or sometimes 10% of the total.

I have always accepted the second solution as being a pretty fair assay. Gentlemen, are there any comments?

MR. SNYDER: There is a third method of assay of Podophyllum that takes into consideration getting out what is considered to be the active principle of podophyllum. I found out in doing some experiments on resin porto fillum that you could get in the neighborhood of 50%.

DR. ENGLEHARDT: This method was devised some years ago, and I have tried it over and over and never could get any satisfactory results with it.

DR. FRANCIS: I would suggest that the committee be instructed to select from their work for this past year any of the specifications or other results that they consider satisfactory and complete, and that a copy of these be submitted to each member of the association and that comments and criticism be invited from the chemists of these several constituent houses, and that finally the summation of their results be submitted to the Revision Committee of the National Formulary, and the U. S. P. to be utilized as they see fit.

A motion to the above effect was adopted.



NITRO GLYCERIN TABLETS

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

DR. FRANCIS: (For Subcommittee No. 16, on Nitro Glycerin.) We have two objects in view, first to determine the quantity of nitro glycerin in tablets, and second, the stability of nitro glycerin tablets.

Nitro Glycerin Assay Problems

The first method was to take a given number of tablets, crush to fine powder, treat with pure ether, evaporate an aliquot portion of the ether and estimate the residue as nitro glycerin. Of course this is obviously the simplest and best method you can use, provided it happens to be a tablet containing no fatty substance, oil or foreign substance soluble in ether. The results are fairly accurate. On the other hand, if the tablet happens to be a commercial compressed tablet, or tablet made in such a way that a lubricant of mineral oil, or grease of any kind is necessary, this would be extracted by your ethereal solvent and weighed as nitro glycerin. The results obtained by the several members of the committee prove the truth of Dr. Dohme's contention that direct extraction by ether is the proper method to use.

On the other hand, with the exception of hypo tablets, I will venture to say that 90% of the commercial tablets available today contain some ether soluble substance, other than nitro glycerin. That necessitates some other method of assay and up to the present time the committee has been forced to adopt some colorimetric method, either the Hay method or a modification of the so-called Hay process.

It was contended by one of my assistants, Mr. Scoville, who published quite a lot on it, that the colorimetric process was good but could be rendered more accurate by certain modifications and the results obtained by several members of the committee would seem to indicate that the Hay process and the Scoville modification are about on a par; in other words, there is a certain amount of variation in the results obtained by the different operators because this is an instance where the individual factor cannot be eliminated, because you are dealing with a color process, and no two men view color exactly the same.

Other processes have been proposed, but they have been rejected as not giving any more uniform results and at the same time are much more intricate and time consuming.

(At this point Dr. Francis read the following:)

Gentlemen of the Subcommittee on Nitro Glycerin:

You will find attached a tabulated statement of the results reported by the members of our subcommittee since the inception of this work in January, 1918.

Limitations of "Direct Estimation" Method

We originally had the "direct estimation" advocated by Dr. Dohme, which consisted essentially in extracting the nitroglycerin with pure ether and the subsequent evaporation of the solvent so that the residue was estimated as nitroglycerin.

This direct method is undoubtedly the most exact, the shortest and the most satisfactory of all methods proposed and it moreover, gives the most uniform results, as indicated by the attached chart—*where it is applicable.*

In other words, if a tablet contains nothing except purified milk sugar or other diluent which has no ingredient soluble in ether, then manifestly there is nothing to be extracted by the ether from such tablets except the Nitroglycerin which we are seeking. As the writer has pointed out and as is, of course, self-evident, such method is not applicable to a large proportion of the tablets commercially available for obvious reasons. Specifically, the average pharmaceutical manufacturer will employ a certain amount of liquid petrolatum or similar oil as a lubricant where Nitroglycerin tablets are *compressed*. It is equally obvious that false results will be obtained if any diluent is employed which contains a trace of fat oil or similar impurity.

As much as we regret it, therefore, I don't see but that we will have to discard the "direct method" except in those occasional instances where we are absolutely sure of the constitution of the tablet involved.

Scoville Modification of the Hay Assay

The Hay Assay has been known for a long time and probably has been more generally used than any other assay method in dealing with Nitroglycerin. As pointed out in several previous communications, it has some obvious disadvantages and a modification of the Hay assay was proposed by Prof. W. L. Scoville—the details of this modified Hay assay having been distributed to the members of our committee.

It is well to pause at this point and direct attention to the fact that it would seem apparent from indirect evidence obtained through Dr. Burdick, that the Hay assay is the method employed by the chemists of the U. S. Agriculture Department and this has been accentuated in the experience of the writer during the past year by controversy arising from the rejection of tablets by government chemists.

It would appear from the comments the writer has received that our committee, or at least a majority of our committee, have agreed that the Scoville modification of the Hay assay is the most advantageous, all things considered—though it remains to be said that it has the drawbacks always associated with the colorimetric method where not only slight differences in the constitution of reagents play a part but where the individual idiosyncrasies of the operator are sure to affect the results.

Dr. Hoskins' Method

The method of Dr. J. D. Hoskins was kindly placed at the disposal of your chairman after the work was well under way and it was sent out to the members of the committee. You will recall that it consisted essentially of using a sufficient number of tablets to be equivalent to approximately one grain of Nitroglycerin, the sample being placed in a kjeldahl flask in conjunction with zinc and diluted sulphuric acid. Sodium hydroxide solution was then added, the apparatus tightly connected up with condensers, etc., the reaction completed by heat and the distillate titrated with 1/10 normal KOH.

This method was not accepted very kindly by some of the members of our sub-committee, on the basis of its being complex; also because of the danger of distilling other impurities and finally, by the assertion made by some that the results were too variable. On the whole, I think that the objection raised by the majority was the complexity of the apparatus and operation required.

Comparison of Assay Results

Frankly speaking, your chairman is very much disappointed and would almost feel like saying that no process tried by the committee up the present time is sufficiently reliable or accurate or perhaps sufficiently simple to permit of its recommendation. There are some variations in the comparative results that seem to be almost beyond explanation. We cannot compare the results obtained by the Scoville method and the Hay method with those obtained by direct extraction with ether (except in the hypo tablets 1/50 gr.) for the very good reason that we know that in the case of the three other tablet triturates the ether is extracting the lubricant or other oily material and is, therefore, giving excessively high results.

When we turn to the Scoville assay and the Hay assay, we find that Dr. Burdick uniformly gets low results by the first method when compared with those reported by Dohme, Heyl and Francis.

Dohme's results by the Scoville assay accord fairly close to his results obtained by the Hay assay.

Heyl's results are materially higher by the Scoville assay than by the Hay method and in fact his figures by the latter method are very low as compared with those from Burdick, Dohme and Francis (using the Hay assay).

Francis' results are higher by the Scoville assay with some tablets, and on the other hand, are higher with the Hay assay in others.

Scoville Method Best

It seems to be hopeless to expect at the present time that we will evolve or discover an assay for Nitroglycerin tablets that is going to give us uniformly accurate results and while the Scoville method has not proved to be so much superior to the Hay process as we originally supposed, it might perhaps be adopted as the best of the lot—until something better is available. In using and discussing it, however, stress should be laid upon the fact that it does not give absolutely uniform results.

Stability of Nitro Glycerin Tablets

The original series of assays on these samples of tablets were reported in January and April, 1918, and second assays were made by Heyl and Francis in August and September of 1918; the third series were made by Heyl and Francis in January and February, 1919; and the fourth and final series (by the Scoville method) were made by Heyl, Dohme and Francis in January and March, 1920.

Notwithstanding the diversity of reports by the Scoville method covering the period from January, 1918, to March, 1920, it seems to me that the general conclusion is warranted that during two years time, these tablets have not deteriorated. One might perhaps draw a different conclusion in the case of the one tablet containing the minute quantity of 1/200 grain, which showed an average content of 78.64% in 1918; an average of 72.7% in the latter part of 1918; 60.8% in 1919, and in March, 1920. Admitting that the tablet was substandard at the time of manufacture and distribution to our committee (as there seems to have been no doubt) is it possible that there is a steady deterioration where such a minute quantity is involved.

Yours very truly,

J. M. FRANCIS.

Results of Nitro Glycerin Tablet Tests*Direct Extraction With Ether*

1918	T.T. 1/20	H.T. 1/50	T.T. 1/100	T.T. 1/200	
	gr.	gr.	gr.	gr.	
Burdick .....	.....	.....	.....	.....
Dohme	130.8%	98%	270%	108%	Jan. 1918
	127.0%	100%	233%	.....
Heyl .....	.....	.....	.....	.....
Francis	113%	98%	218%	80%	Apr. 1918
Average	123%	98.66%	240%	94%	

Scoville Assay Method

Burdick	93%	78%	99%	80%	
Dohme	115%	91%	120%	96%	Jan. 1918
	100%	110%	114%		
Heyl	101.6%	92.5%	95%	72%	Feb. 1918
	105.8%	100%	91%	72.2%	
Francis	114%	98%	120%	73%	Apr. 1918
Average	104.9%	94.9%	104.8%	78.64%	

Hay Assay

Burdick	112.6%	107%	120.4%	102.7%	Jan. 1918
Dohme	115%	95%	108%	89%	Jan. 1918
	94%	94%	121%	78%	
Heyl	75%	62.5%	77%	52.6%	Feb. 1918
	87%	78.5%	92%	60.2%	
Francis	93%	112%	98%	86%	Apr. 1918
Average	96.1%	91.5%	102.7%	78%	

1918—Second Series of Assays—(By Scoville Method)

Heyl	105.4%	99%	107%	72.4%	Aug. 1918
Francis	115%	96%	112%	73.0%	Sept. 1918
Average	110%	97.5%	109.5%	72.7%	

1919—Third Series of Assays—(By Scoville Method)

Heyl	124%	96.5%	119%	55.6%	Jan. 1919
Francis	114%	95.0%	112%	66.0%	Feb. 1919
Average	119%	95.75%	115.5%	60.8%	

1920—Fourth Series of Assays—(By Scoville Method)

Heyl	110%	99%	109%	76%	Mar. 1920
Dohme	92%	84%	98%	66.6%	Jan. 1920
Francis	100%	86%	100%	66%	Mar. 1920
Average	100.6%	89.6%	102.3%	69.5%	

Reduction Nitro Glycerin to Ammonia

DR. ENGLEHARDT: In all colorimetric methods, the results are liable to vary considerably. During the last few weeks one of the gentlemen of the committee proposed a method depending on the reduction of the nitro glycerin to ammonia, which was done by heating nitro glycerin tablets with iron and zinc in alkaline solution, if I remember correctly, and such a process naturally would be a very good one; but on the other hand, by doing so other substances are distilled over also. We tried this method and used a very effective trap for catching these substances, which have an alkaline reaction, neutralize the acid in the receiver, and consequently render the results too high. But this method did not work.

I might suggest to Dr. Francis to let the members of the sub-committee try out a process which was published in the last number of the Journal of Industrial and Engineering Chemistry where in the estimation of nitrogen in nitrates a method is devised based on a similar principle as this one suggested by the member of the committee. In this method Devarda's reagent is used for reducing the nitro glycerin, which is a mixture of certain amounts of aluminum copper and zinc. I believe that distillation with this reagent should be tried, and a very effective scrubber such as the Davison scrubber should be applied for preventing any alkaline substances being carried over. I am anxious to know if that method will work. If it is successful, certainly it is far superior to any colorimetric method.

DR. FRANCIS: Where is that article published?

DR. ENGLEHARDT: In the April number of the Journal of Industrial and Engineering Chemistry, and it refers back to an article in the same Journal published in 1919. Devarda's reagent is a mixture of 45% of aluminum, 5% of zinc and 50% copper.

DR. FRANCIS: With your permission, the committee will look up the processes suggested by Dr. Englehardt, and we will finally submit our conclusions to the several members of the association to be criticized by the chemists, and in due season we will sum up the criticisms and make a final report.

DR. ROSIN: I am not familiar with nitro glycerin, but it occurred to me that to remove interfering substances the tablets might be extracted first with ether and then assayed for nitro glycerin.

DR. FRANCIS: Well, I cannot say offhand, because I am not familiar with the details of the process the doctor has in mind.

DR. ROSIN: The process has been used for a long time with nitrates and is a well established process. It works very smoothly. Originally there was used a mixture of zinc and iron filings. It is based on the reduction of the nitrate group to ammonia.

DR. FRANCIS: How does that differ from the process proposed by Dr. Hoskins?

DR. ENGLEHARDT: I do not know that it differs at all, but if we can avoid the distilling over of these alkaline substances, whether it be sodium zincate or zinc oxide, naturally much is gained.

Dr. Hoskins' Method

DR. HOSKINS: I represent the Zemmer Company in that method of distillation. Now, in running a control I made a 10% solution of nitro glycerine in alcohol and checked it within .2%, but in running your control, you must add the amount of sugar, caseine, starch and oil and deduct it at the end. There is one advantage, the Davidson trap is an advantage, it saves distilling over the alkali, but that is the method I used before the war. We made a great many for the Government and I never had one turned down, but your blank control must be an absolute blank.

DR. ENGLEHARDT: But at the same time, if you get in each case a different amount of volatile matter, then the running of a blank will be of no use. The amount of alkaline substances being carried over seems to depend on the amount of reducing agent taken, or on the rate of heating or whatever it may be, because I ran two blanks and got two different results.

Colorimetric Determinations Criticized

DR. HOSKINS: I haven't any faith in colorimetric determinations. They do not check within 5 or 10%, and if you cannot check within 10%, you might as well stop. In Pittsburgh we have more chemists to the square inch than in any other place in the country. They are not pharmaceutical chemists, but .3% is their limit. If we are going to vary 3% to 10% on our assay, we might as well stop. I believe we will get it down finer than that. I believe we will get it after a while so that we can check it.

The Sulphanilic Acid Method

DR. ENGLEHARDT: I know that the Bureau of Chemistry has used the sulphanilic acid method in assaying nitro glycerin tablets for

more than ten years, but I personally would not care to go on the stand with results obtained by this method. When the diazotize sulphanilic acid by means of silver nitrite and combine the diazobenzene sulphonic acid with naphthylamine you obtain a bluish purple azo-dye, while when the nitrite obtained by the saponification of the nitro glycerin is used for diazotizing the sulphanilic acid a yellowish-purple azo-dye is formed with naphthylamine, or vice versa.

Although there is not a great difference between the two colors obtained, it makes, nevertheless, a comparison of the colors difficult, especially for one who does not regularly make colorimetric estimations. Similar conditions prevail in the Scoville method and in the picric acid process, where a greenish-yellow color is compared with a reddish-yellow, but in this case the difficulty in comparing the two colorations is not as great as in the Hay method. The personal equation in colorimetric assays plays an important role and, in my opinion, these processes should be replaced, whenever possible, by straight chemical methods.

The Scoville Method Commended

A MEMBER: I have done a lot of work on nitro glycerin with the Scoville method and like it very much. You must understand that the more complicated you make a process, the more inaccurate the results are likely to be.

DR. FRANCIS: I have some reports from the Control Assay Committee, which is not the nitro glycerin committee at all. I sent some commercial tablets to this Committee to be assayed by the Scoville method. Their results are just as close as similar assays made by the Dohme direct method, the direct ether solution method. Now if you cannot assay nitro glycerin by taking a mixture of pure nitro glycerin and milk sugar, dissolving out the nitro glycerin by ether and evaporating, you cannot determine it by any method and the variation in the results from different investigators are as great by the direct ether process as those obtained by three laboratories using the Scoville method.

DR. ENGLEHARDT: I wonder would it happen again?

DR. FRANCIS: I cannot say, except that you remember the conditions under which they were presented. Nobody knew what they were. They were all taken out of the same vials and sent out, and the question asked, "How much nitro glycerin do they contain?" However, the Committee does not want to be arbitrary; we want to send the results to several laboratories and invite criticism.

PEPSIN AND PANCREATIN

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

Report of the Subcommittee

As a result of the last two years' co-operative work, the Subcommittee on Pepsin and Pancreatin has the following report and recommendations to make:

Pancreatin

The present assay method for determining the diastasic power of pancreatin is quite satisfactory.

The Subcommittee considers it advisable that a formal recommendation be sent to the Revision Committee of the U. S. Pharmacopoeia requesting that the peptonizing test now employed be discontinued and that the Fuld Gross method be adopted in lieu thereof. A standard proteolytic power of 1:25 by this method is recommended.

In describing the Fuld Gross method in the Pharmacopoeia, definite specifications should be given as to: (1) The purity of the casein; (2) The exact temperature and time required for dissolving the casein in the sodium carbonate solution; (3) The final reading of the test. It should be specifically stated that the end point is not reached until the solution is absolutely clear. (No turbidity or haziness should be allowed.)

Pepsin

In the present Pepsin Assay method a rubber-tipped glass rod and small successive portions of acid water are employed as means of separating the egg albumen particles. As a substitute for this inadequate and time-consuming procedure the Committee recommends the following method: 10 grams of the egg albumen (which has been previously passed through the sieve) are weighed out and placed in a wide-mouth bottle of 100 mls capacity. 35 mls of acid water is then added, followed by 5 mls of the pepsin solution. After tightly stoppering, the bottle is pounded hard for 75 times on a thick soft rubber pad or a well-stuffed canvas cushion and then placed in the heated bath for digestion.

Otherwise the Pepsin Assay method should remain unchanged.

The tests on the deterioration of liquid pepsin and pancreatin preparations are in progress. It will, however, require several years before results of any interest are available.

Very truly yours,

FREDERICK FENGER.

Chairman, Subcommittee on Pepsin and Pancreatin.

Discussion of the Report

Age of the Eggs as a Factor

DR. FRANCIS: You can very often get results after the lapse of 18 months or 2 years, Doctor; there is no doubt about it. I would like to ask if you propose to make any definite specifications with regard to the age of the eggs to be used or the length of time they are to be subjected to the heat of boiling water? I don't know so much about the length of time, but the age of the eggs certainly does have an important bearing on the final digestion, to the extent that an egg 10 days or 2 weeks old will give quite different results from an egg laid within 2 or 3 days.

MR. FENGER: Yes, the test says more than 3 days and less than one week.

DR. FRANCIS: It seems to me that Dr. Fenger's report, up to the point he has gone as covering pepsin and pancreatin, calls for some action; in other words, the Committee considers that his work on these substances in the dry form has been completed up to date. The investigation of liquid preparations will consume not less than 2 years, but that is a separate subject. I would advise that the report of the Committee be accepted, that copies of same be submitted to all the members of the Association for final criticism or commendation, and that, in due season, the conclusions be sent to Revision Committees of the U. S. P. by the Chairman of such Committee.

DR. SNYDER: I make such a motion.

(The motion was seconded and carried.)

CRUDE DRUG PROBLEMS

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

DR. FRANCIS: Next is the report of Committee No. 6, Crude and Milled Drugs. I have had some very unpleasant experience with crude drugs, no less for instance than the citation, within the last 30 days, from attaches of the agricultural department to explain how they were able to purchase a package of pressed herb, root-bark of wahoo that contained 10 per cent of wood, which was pronounced an adulteration because the National Formulary allows a maximum of only 5 per cent. Now the whole thing would be ridiculous if it were not for the fact that you have the power of the U. S. Government behind the collection of specimens throughout the country of any drug in any size package from a one-ounce package for domestic use up to a carload for manufacturing purposes.

N. F. Wahoo Requirements Impractical

Perhaps you can imagine some poor white down in Alabama. He goes out during the day and digs up some wahoo roots. They are as crooked as a ram's horn. He is expected to remove the bark only and if he takes off more than 5 per cent of the woody portion of the root and you put it out under your label and get it into interstate commerce you at once render yourself liable to prosecution for having sold wahoo bark which is adulterated, though it contains no foreign substance except this white woody portion of the root.

Crude Drug Requirements Generally Impractical

Now I refer to wahoo bark root because it is a fair example of the conditions of practically all our domestic drugs. The U. S. Pharmacopœia and National Formulary in most instances set certain limits to foreign substances spoken of as "adulterants," and the word "adulterant" not only covers sand, earth and foreign drugs, but such things as the woody fibre, or the portion above ground if you are dealing with roots, or if you happen to be dealing with the leaves the word "adulterant" covers such things as the larger stems upon which the leaves grow. In the case of chestnut leaves, for instance, the twigs, in the eyes of the law, are just as much an adulterant and lay you open to penalties the same as if the collector had deliberately put some foreign drug in; all are considered adulterants. There was never a time during the past 25 years, to my knowledge, when you could buy properly collected native drugs. If you succeeded in getting one that ran 95

per cent of true identity it was something wonderful. Under present conditions, when it is almost impossible to get labor for any occupation whatever, the idea of inducing people to exclude more than 5 per cent of the woody fibre of wahoo root bark is absolute nonsense. If the authorities decide to strictly enforce the specifications of their National Formulary they will absolutely paralyze commerce in native drugs.

You may purchase such a thing as unadulterated chestnut leaves but you cannot find a field of peppermint in the United States in which there is not growing a certain proportion of spearmint or a hybrid of spearmint and peppermint. If you purchase peppermint it is impossible to garble or remove this 5 per cent or 10 per cent of spearmint or hybrid plant which is an adulterant. Now are you going to sell peppermint or eliminate it from American commerce?

MR. SNYDER: We have had quite a lot of experience with mandrake, which has been transported from state to state, and we have received some shipments that were exceptionally poor, which I think is due to the same conditions you speak of, that is the scarcity of labor and the labor not being sufficiently skilled in the collection of mandrake roots; in fact, I think we finally placed a bonus upon the price of good mandrake root in order to get it, but I am sure that some of the mandrake root that has come through would not be considered of prime quality by the Government officials.

War's Effect on Crude Drug Collection

MR. ROWLANDS: I am interested in your remarks about wahoo, which I believe covers practically all our domestic drugs and foreign drugs. Today we cannot get help, intelligent help, to gather the different drugs that are in the domestic list. For instance, wild cherry bark, it is impossible to get it pelled by the old method because the old peelers are either doing something else or have passed away. We feel, however, that in two or three years we will get back to the old conditions where we can get drugs that will comply with all the requirements. I know that a great many manufacturers today are taking drugs that ordinarily they would not accept and which ordinarily the dealers and collectors would not offer.

It is simply a case of filling the bill with something as near the requirements as possible. You can go in the fields, as you said about peppermint, and you will find that condition, and when it comes to sand and dirt in different drugs then of course it is up to the dealer or handled to get out all he can, which he does, but when drugs are

shipped in from the country with as high as 25 and 30 per cent of sand, gravel and all other stuff mixed in it is pretty difficult, with the labor you can get in New York, Chicago or anywhere else, to eliminate such stuff. People want these drugs in a rush and some will be glad to take them as they are and do their own cleaning. I have found that to be an actual fact. Now, on the subject of peeling that you spoke of in reference to wahoo, 10 per cent wood fibre today, as you get it out of the gatherer's hands, is about as close as you can get.

DR. FRANCIS: That is 5 per cent excess of allowable adulterant?

MR. ROWLAND: Yes. Take black-haw, it is the same way; you have to fight with the gatherers and reject one lot after another to get them down anywhere near to earth to get drug that will pass. Tons of it are rejected right along. If anybody can suggest a method of getting more labor it will make all the drug men happy. I believe we all find the same difficulty on the labor situation, even in the chemical laboratory as well as anywhere else; it is the labor situation, not that anybody wants to do anything wrong or wants to "put over something."

Necessity of Official Leniency

I think that today you will find that the Department of Agriculture, which handles our incoming drugs from foreign countries, has sometimes been a little lenient with drugs that have been imported, knowing what the situation is abroad, but they do not appear to be so complacent in the case of native drugs. I do not see why we ought not to be given the same leeway here at home, and I think that that point of yours to eliminate the word "adulterant" would not be a bad idea. If an excess of the wood is left in wahoo, for instance, how are you going to eliminate it? (Laughter.)

Official Standards Only Affect Labelling

MR. GANE: I think Government officials are fully alive to the present situation, both in the imported and domestic crude drug market, and I think it would be out of the question to ask them to suspend the operation of the law, or at all events to make the terms of the law a little more lenient on account of the conditions of the crude drug market at the present time. Their duty is to enforce the law and not to stretch it. The reply they would make to a committee of this association I think would be that provision is already made in their regulations covering just such a situation as this.

I know that in connection with imported drugs they have, at New York, permitted the importation of a number of sub-standard drugs provided they are labeled in accordance with the results of their examination. One item that occurs to my mind at the present time is chamomile, which has been coming in in very bad shape, largely mixed with dog fennel. Chamomile flowers have been offered on the market with this statement on the package: "This contains a certain percentage of dog fennel." The Government will say that you are at perfect liberty to sell these goods providing you state on the label just what they are. I think that is the only thing to do at the present time.

DR. FRANCIS: Are you allowed to sell drugs in interstate commerce with the statement that they contain 10 per cent of adulterants? The National Formulary specifies 3 per cent.

MR. GANES: Yes, the National Formulary and the U. S. P. are not absolute legal standards, you can make your own standard for any crude drug that you want so long as you put on the label just what it is, provided only it contains nothing injurious to health.

DR. ROSIN: That is true of chemicals as well. If it does not comply with the standard it is only necessary to state wherein it differs.

DR. FRANCIS: Is not that true provided only that they are used for a certain specific object?

DR. ROSIN: No, it applies to all; for instance, zinc oxide—

DR. HOSKINS: We could not get zinc oxide during the war and Powers & Weightman marked it and everybody marked it: "This contains an excess of heavy metals, U. S. P."

MR. LYNN: The gentleman is right, absolutely.

U. S. P. Recognition of American Storax

DR. FRANCIS: I want to refer to two other topics that might be worth further consideration. Your committee, I think, is very largely of the mind that we might take some steps leading, if possible, to having the new Revision of the Pharmacopœia recognize American storax, because of the difficulty of procuring imported storax and on the presumption that the quantity of the liquid amber of the United State is ample, provided the American collectors could be induced to collect it, and that it has practically the same chemical constitution and the same therapeutic activity as the Oriental storax and because we are now dependent on supplies obtained from South America.

Substituting Indian for American Mandrake

The other matter of considerable interest is the possibility of importing from India and substituting for ordinary mandrake the *Podophyllum Emodi*. I know some of you gentlemen are going to raise the question as to the relative activity of the Indian drug as compared with the native drug. Some claim that the resin of the imported drug is less active; others claim that it is fully as active, grain for grain.

I have had occasion in the last few months to make some investigation as to the availability of the foreign drug. I am assured that if the thing is gone about in a logical way it will not be difficult to import from 20 to 200 tons of the *Podophyllum Emodi* from India, allowing a reasonable time for its collection by the natives.

It is currently stated to have a content running from 5 to 9 per cent of resin, whereas it is extraordinary to find the native drug running higher than 5 or 6 per cent of resin.

Within the last few weeks there has been available on the London market two to four tons of the Indian drug and, converted into American exchange, that drug if laid down in New York City would cost 45 or 46½ cents a pound, which indicates that our English brothers are fully alive to the situation and are not proposing to let us have the imported drug any cheaper than for the native drug.

It is a question that cannot be settled in 30 days or 60 days, but we ought to go into an investigation of the question of using the Indian drug very carefully, determine its content of resin and therapeutic activity, and also the matter of price and the possibility of making regular arrangements for its collection and importation. Is there anything further coming within the purview of this committee? You see it is not such an unimportant committee after all.

U. S. P. Recognition of American Storax Recommended

MR. SNYDER: We had a special meeting of this section the latter part of August at which time I, as chairman of the Committee on Storax, reported and as I understand the recommendation at that time was adopted, asking that the Pharmacopœia admit American storax.

THE SECRETARY: The recommendation has not yet been forwarded to the Revision Committee. The Sub-committee on Crude and Milled Drugs is now having a revision drafted for presentation to the

Revision Committee. Following that step I believe the committee intends to adopt some means of popularizing the collection of the drug. They feel that it should be introduced in the Pharmacopœia first because they believe that with its introduction into the Pharmacopœia the collectors will be more inclined to collect it.

MR. SNYDER: I might say that I had some correspondence with one of the Government officials and he was very favorable toward its recognition and intended to take steps to establish a means of collecting it from the American sweet gum tree.



Metric Equivalents

As Discussed by the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

DR. SNYDER: The point I had in mind in preparing the following table for metric equivalents was to bring about a uniformity in stating the metric equivalents of the apothecary weights and measurements upon the labels of our preparations. In practically all instances, on this table, the metric equivalents are very close. They are figured to about the second decimal place, with one exception, and that is that 15 grains is called one gramme. That was done on account of the Pharmacopoeia, practically throughout, stating that 15 grains were one gramme, and accordingly I offer the following resolution:

Proposed Resolution on Metric Equivalents

"Resolved that the Scientific Section of the American Drug Manufacturers' Association recommends to the Association the adoption of the attached table of metric equivalents, and furthermore, that copies of this minute be sent to the Bureau of Standards and they be advised that said table will be placed in tentative use by the various members of our Association, subject to approval or change."

Table of Metric Equivalents

GRAINS TO MILLIGRAMS

14 grs. equals 907 mgms.	1/17 grs. equals 3.81 mgms.
13 grs. equals 842 mgms.	1/18 grs. equals 3.60 mgms.
12 grs. equals 778 mgms.	1/19 grs. equals 3.41 mgms.
11 grs. equals 712 mgms.	1/20 grs. equals 3.24 mgms.
10 grs. equals 648 mgms.	1/21 grs. equals 3.09 mgms.
9 grs. equals 583 mgms.	1/22 grs. equals 2.95 mgms.
8 grs. equals 518 mgms.	1/23 grs. equals 2.82 mgms.
7 grs. equals 454 mgms.	1/24 grs. equals 2.70 mgms.
6 grs. equals 389 mgms.	1/25 grs. equals 2.59 mgms.
5 grs. equals 324 mgms.	1/28 grs. equals 2.31 mgms.
4 grs. equals 259 mgms.	1/30 grs. equals 2.16 mgms.
3 grs. equals 194 mgms.	1/32 grs. equals 2.03 mgms.
2 grs. equals 130 mgms.	1/36 grs. equals 1.80 mgms.
1 grs. equals 65 mgms.	1/40 grs. equals 1.62 mgms.
1/2 grs. equals 32.4 mgms.	1/42 grs. equals 1.54 mgms.
1/3 grs. equals 21.6 mgms.	1/48 grs. equals 1.35 mgms.
1/4 grs. equals 16.2 mgms.	1/50 grs. equals 1.30 mgms.
1/5 grs. equals 12.96 mgms.	1/60 grs. equals 1.08 mgms.
1/6 grs. equals 10.80 mgms.	1/64 grs. equals 1.01 mgms.
1/7 grs. equals 9.26 mgms.	1/70 grs. equals 0.93 mgms.
1/8 grs. equals 8.10 mgms.	1/80 grs. equals 0.81 mgms.
1/9 grs. equals 7.20 mgms.	1/90 grs. equals 0.72 mgms.
1/10 grs. equals 6.48 mgms.	1/100 grs. equals 0.65 mgms.
1/11 grs. equals 5.99 mgms.	1/120 grs. equals 0.54 mgms.
1/12 grs. equals 5.40 mgms.	1/125 grs. equals 0.52 mgms.
1/13 grs. equals 4.98 mgms.	1/150 grs. equals 0.43 mgms.
1/14 grs. equals 4.63 mgms.	1/200 grs. equals 0.32 mgms.
1/15 grs. equals 4.32 mgms.	1/250 grs. equals 0.26 mgms.
1/16 grs. equals 4.05 mgms.	1/300 grs. equals 0.22 mgms.

1/350 grs. equals	0.19 mgms.	1/500 grs. equals	0.13 mgms.
1/400 grs. equals	0.16 mgms.	1/1000 grs. equals	0.06 mgms.
1/450 grs. equals	0.14 mgms.		

GRAINS TO GRAMS

15 grs. equals	1 gm.	200 grs. equals	12.96 gms.
16 grs. equals	1.04 gms.	205 grs. equals	13.28 gms.
17 grs. equals	1.10 gms.	210 grs. equals	13.61 gms.
18 grs. equals	1.17 gms.	215 grs. equals	13.93 gms.
19 grs. equals	1.23 gms.	219 grs. equals	14.19 gms.
20 grs. equals	1.30 gms.	220 grs. equals	14.26 gms.
21 grs. equals	1.36 gms.	225 grs. equals	14.58 gms.
22 grs. equals	1.43 gms.	230 grs. equals	14.90 gms.
23 grs. equals	1.49 gms.	235 grs. equals	15.23 gms.
24 grs. equals	1.56 gms.	240 grs. equals	15.55 gms.
25 grs. equals	1.62 gms.	245 grs. equals	15.88 gms.
26 grs. equals	1.68 gms.	250 grs. equals	16.20 gms.
27 grs. equals	1.75 gms.	255 grs. equals	16.52 gms.
28 grs. equals	1.81 gms.	260 grs. equals	16.85 gms.
29 grs. equals	1.88 gms.	265 grs. equals	17.17 gms.
30 grs. equals	1.94 gms.	270 grs. equals	17.50 gms.
31 grs. equals	2.00 gms.	275 grs. equals	17.82 gms.
32 grs. equals	2.07 gms.	280 grs. equals	18.14 gms.
33 grs. equals	2.13 gms.	285 grs. equals	18.47 gms.
34 grs. equals	2.20 gms.	290 grs. equals	18.79 gms.
35 grs. equals	2.27 gms.	295 grs. equals	19.12 gms.
40 grs. equals	2.59 gms.	300 grs. equals	19.44 gms.
45 grs. equals	2.91 gms.	305 grs. equals	19.76 gms.
50 grs. equals	3.24 gms.	310 grs. equals	20.09 gms.
55 grs. equals	3.56 gms.	315 grs. equals	20.41 gms.
60 grs. equals	3.89 gms.	320 grs. equals	20.73 gms.
65 grs. equals	4.21 gms.	325 grs. equals	21.06 gms.
70 grs. equals	4.54 gms.	328 grs. equals	21.25 gms.
75 grs. equals	4.86 gms.	330 grs. equals	21.38 gms.
80 grs. equals	5.18 gms.	335 grs. equals	21.71 gms.
85 grs. equals	5.51 gms.	340 grs. equals	22.03 gms.
90 grs. equals	5.83 gms.	345 grs. equals	22.36 gms.
95 grs. equals	6.16 gms.	350 grs. equals	22.68 gms.
100 grs. equals	6.48 gms.	355 grs. equals	23.00 gms.
109 grs. equals	7.06 gms.	360 grs. equals	23.33 gms.
110 grs. equals	7.13 gms.	365 grs. equals	23.65 gms.
120 grs. equals	7.78 gms.	370 grs. equals	23.98 gms.
125 grs. equals	8.10 gms.	375 grs. equals	24.30 gms.
130 grs. equals	8.42 gms.	380 grs. equals	24.62 gms.
135 grs. equals	8.75 gms.	385 grs. equals	24.95 gms.
140 grs. equals	9.07 gms.	390 grs. equals	25.27 gms.
145 grs. equals	9.40 gms.	395 grs. equals	25.60 gms.
150 grs. equals	9.72 gms.	400 grs. equals	25.92 gms.
155 grs. equals	10.04 gms.	405 grs. equals	26.24 gms.
160 grs. equals	10.37 gms.	410 grs. equals	26.57 gms.
165 grs. equals	10.69 gms.	415 grs. equals	26.89 gms.
170 grs. equals	11.02 gms.	420 grs. equals	27.22 gms.
175 grs. equals	11.34 gms.	425 grs. equals	27.54 gms.
180 grs. equals	11.66 gms.	430 grs. equals	27.86 gms.
185 grs. equals	11.99 gms.	435 grs. equals	28.19 gms.
190 grs. equals	12.31 gms.	437.5 grs. equals	28.35 gms.
195 grs. equals	12.64 gms.		

MIN. TO MILS.

1 min. equals	.06 mils.	3 min. equals	.18 mils.
2 min. equals	.12 mils.	4 min. equals	.25 mils.

5 min. equals	.31 mils.	195 min. equals	12.01 mils.
6 min. equals	.37 mils.	200 min. equals	12.32 mils.
7 min. equals	.43 mils.	205 min. equals	12.63 mils.
8 min. equals	.49 mils.	210 min. equals	12.94 mils.
9 min. equals	.55 mils.	215 min. equals	13.24 mils.
10 min. equals	.61 mils.	220 min. equals	13.55 mils.
11 min. equals	.68 mils.	225 min. equals	13.86 mils.
12 min. equals	.74 mils.	230 min. equals	14.17 mils.
13 min. equals	.80 mils.	235 min. equals	14.48 mils.
14 min. equals	.86 mils.	240 min. equals	14.78 mils.
15 min. equals	.92 mils.	245 min. equals	15.09 mils.
16 min. equals	1.00 mils.	250 min. equals	15.40 mils.
17 min. equals	1.05 mils.	255 min. equals	15.71 mils.
18 min. equals	1.11 mils.	260 min. equals	16.02 mils.
19 min. equals	1.17 mils.	265 min. equals	16.32 mils.
20 min. equals	1.23 mils.	270 min. equals	16.63 mils.
21 min. equals	1.29 mils.	275 min. equals	16.94 mils.
22 min. equals	1.35 mils.	280 min. equals	17.25 mils.
23 min. equals	1.42 mils.	285 min. equals	17.56 mils.
24 min. equals	1.48 mils.	290 min. equals	17.87 mils.
25 min. equals	1.54 mils.	295 min. equals	18.17 mils.
26 min. equals	1.60 mils.	300 min. equals	18.48 mils.
27 min. equals	1.66 mils.	305 min. equals	18.79 mils.
28 min. equals	1.73 mils.	310 min. equals	19.10 mils.
29 min. equals	1.79 mils.	315 min. equals	19.40 mils.
30 min. equals	1.85 mils.	320 min. equals	19.71 mils.
35 min. equals	2.16 mils.	325 min. equals	20.02 mils.
40 min. equals	2.46 mils.	330 min. equals	20.33 mils.
45 min. equals	2.77 mils.	335 min. equals	20.64 mils.
50 min. equals	3.08 mils.	340 min. equals	20.94 mils.
55 min. equals	3.39 mils.	345 min. equals	21.25 mils.
60 min. equals	3.70 mils.	350 min. equals	21.56 mils.
65 min. equals	4.00 mils.	355 min. equals	21.87 mils.
70 min. equals	4.31 mils.	360 min. equals	22.18 mils.
75 min. equals	4.62 mils.	365 min. equals	22.48 mils.
80 min. equals	4.93 mils.	370 min. equals	22.79 mils.
85 min. equals	5.24 mils.	375 min. equals	23.10 mils.
90 min. equals	5.55 mils.	380 min. equals	23.41 mils.
95 min. equals	5.85 mils.	385 min. equals	23.72 mils.
100 min. equals	6.16 mils.	390 min. equals	24.03 mils.
105 min. equals	6.50 mils.	395 min. equals	24.33 mils.
110 min. equals	6.78 mils.	400 min. equals	24.64 mils.
115 min. equals	7.08 mils.	405 min. equals	24.95 mils.
120 min. equals	7.39 mils.	410 min. equals	25.26 mils.
125 min. equals	7.70 mils.	415 min. equals	25.57 mils.
130 min. equals	8.01 mils.	420 min. equals	25.88 mils.
135 min. equals	8.32 mils.	425 min. equals	26.19 mils.
140 min. equals	8.62 mils.	430 min. equals	26.49 mils.
145 min. equals	8.93 mils.	435 min. equals	26.80 mils.
150 min. equals	9.24 mils.	440 min. equals	27.11 mils.
155 min. equals	9.55 mils.	445 min. equals	27.42 mils.
160 min. equals	9.88 mils.	450 min. equals	27.72 mils.
165 min. equals	10.16 mils.	455 min. equals	28.03 mils.
170 min. equals	10.47 mils.	460 min. equals	28.34 mils.
175 min. equals	10.78 mils.	465 min. equals	28.64 mils.
180 min. equals	11.09 mils.	470 min. equals	28.95 mils.
185 min. equals	11.40 mils.	475 min. equals	29.76 mils.
190 min. equals	11.71 mils.	480 min. equals	29.59 mils.

OZS. AV. TO GRMS.

1 oz. equals	28 gms.
2 oz. equals	57 gms.
3 oz. equals	85 gms.
4 oz. equals	113 gms.
5 oz. equals	142 gms.
6 oz. equals	170 gms.
7 oz. equals	198 gms.
8 oz. equals	227 gms.
9 oz. equals	255 gms.
10 oz. equals	284 gms.
11 oz. equals	312 gms.
12 oz. equals	340 gms.
13 oz. equals	369 gms.
14 oz. equals	397 gms.
15 oz. equals	425 gms.
16 oz. equals	454 gms.

FL. OZS. TO MILS.

1 fl. oz. equals	30 mils.
2 fl. oz. equals	59 mils.
3 fl. oz. equals	89 mils.
4 fl. oz. equals	118 mils.
5 fl. oz. equals	148 mils.
6 fl. oz. equals	177 mils.
7 fl. oz. equals	207 mils.
8 fl. oz. equals	237 mils.
9 fl. oz. equals	266 mils.
10 fl. oz. equals	296 mils.
11 fl. oz. equals	325 mils.
12 fl. oz. equals	355 mils.
13 fl. oz. equals	384 mils.
14 fl. oz. equals	414 mils.
15 fl. oz. equals	444 mils.
16 fl. oz. equals	473 mils.
1 gal. oz. equals	3785 mils.

Dr. Dohme's Proposed Amendment

In sending this out, Dr. Dohme offered an amendment to it, that instead of using 15 grains, which is 972 milligrams, we use $15\frac{1}{2}$ grains or 1,000 milligrams. Personally, I think it might be well to follow out the example of the Pharmacopoeia in using 15 grains as 1 gramme. If we could adopt such a table, I think it would give us uniformity in labeling all our products.

One Gramme for 15 Grains Disapproved

DR. FRANCIS: As I understand the issue in point, Dr. Snyder has in mind the fact that it is necessary on the part of all manufacturers to use the metric system, sometimes alone and very frequently the so-called double system. There is no doubt that the variation in the equivalents as adopted by different manufacturers does lead to misunderstanding and confusion. His idea, therefore, is very sound. It is merely a question as to what we can adopt as the proper system of equivalents.

I, for one, find it very difficult indeed, to adopt the proposal that one gramme is equivalent to 15 grains. We know that it is more nearly equivalent to $15\frac{1}{2}$ grains—or 15.43 would be the approximate equivalent. So, from the practical viewpoint, it is a question as to whether he is departing too far from accuracy in adopting this unit system, of one gramme being equivalent to 15 grains rather than to $15\frac{1}{2}$. At the same time, as I say, we recognize the necessity that we should adopt a uniform system for employment throughout the entire trade.

DR. HOSKINS: I would like to ask Dr. Snyder if that table is based on that standard?

Advantage of Using Milligrams

MR. SNYDER: No, only in that one instance, which was put there through the Pharmacopoeial Convention calling 15 grains 1 gramme; it would lead to greater accuracy if we called it 972 milligrams. The object in using milligrams was so that in very small quantities you would not have to use 4 or 5 decimal places to express $1/50$ or $1/200$ of a grain; also, if you do not use milligrams, then when it comes to $1/60$ and $1/65$ of a grain, you cannot express the difference unless you go to the fourth decimal place, and that does not look very good on our labels.

Gramme as Basis of Comparisons

DR. FRANCIS: What have you adopted as the unit from which to start your comparisons?

MR. SNYDER: Fifteen grains equals one gramme and 16 equals 1.04 grammes.

DR. FRANCIS: In that case, haven't you adopted the gramme, if you say 15 grains is equal to one gram on which to build up your system?

MR. SNYDER: Well, on our former labels and cards, as figured in the apothecary system, one fluid ounce can represent 15 grains of a preparation.

DR. FRANCIS: In that case, one grain will be the basis from which to start.

MR. SNYDER: It might be.

DR. FRANCIS: Because, in looking over your paper, I was a little puzzled. The trade at large uses the apothecary system, with the grain as the starting point, and according to this system, you would use the gram as the starting point; you have adopted that as your absolute basis and are forcing the grain to meet it.

MR. STOFER: I would like to ask Mr. Snyder, assuming 15 grains equals 1 gram—personally, I think that we should adopt an absolute equivalent or as near an absolute equivalent as possible, but say 16 grains equals 1.04 grams, is that the equivalent?

MR. SNYDER: That is exact as far as the second decimal place.

Need of Official Standard

MR. STOFER: I may say that what we have been attempting for a year is to get some official standard. Of course, you realize that on labels representing fractions of grains, it is absolutely necessary to have some definite equivalent, and it seems to us that there should be a degree of uniformity everywhere so as not to confuse the mind of the druggist or physician. Prof. Arny promised me that he would take it up with the Bureau of Standards. A few months ago I conversed with Dr. Schieffelin. I did not have this schedule at the time, but Dr. Schieffelin asked me if we expressed it in milligrams how we would express it, and I told him that when it was more than .4 we should express it in the next higher term. Dr. Schieffelin also promised that he would take it up with the Bureau of Standards.

Putting Both Systems on Labels

DR. HOSKINS: Mr. Stofer, if this was adopted, would you advise the different members of the Association to place both equivalents on all labels?

MR. STOFER: Yes sir, I would, for some time. It is still a matter of education. At times it has been a matter of serious doubt, in my mind, whether we should not express the metric absolutely and the apothecary in the nearest approximate equivalent, rather than the other way around, although it is like attempting to speak a strange language. Inevitably you think in your own language and get along a little better as far as the working of your own mind is concerned, and I think it would popularize the metric system if you did express it in this manner, with the apothecary first and the metric afterwards, but give the exact apothecary equivalent so that each user knows what he is doing; then, in the course of a year or two, if they wish to revise the method or eliminate the apothecary system entirely, all right.

MR. SNYDER: I might say, for Mr. Hoskins' information, that two years ago this Association adopted a resolution calling on all members to place the metric equivalents of the apothecary system upon the label, so that that has really been taken care of by the Association. Personally, I think that until such a time as we can adopt formula cards and manufacture according to the metric system, that we'd better use the metric as the equivalent of the apothecary, rather than the other way, or else we will have some confusion in building our formula cards.

MR. TAILBY: I should think the Bureau of Standards would not approve of this list unless it were absolutely correct, and certainly 15 grains is not a gram.

Retention of Grain as Basis of Calculation

DR. FRANCIS: I would like to get this thing down to a practical basis and perhaps settle the matter in the course of a year. While the adoption of the metric system as the basic system on which to operate is theoretically very fine, judging by my own experience in pharmaceutical manufacturing, the time is not yet ripe to make the decimal system a basic system.

Considering the working cards in all your various laboratories and taking all the members of this Association into account, the number of those cards would run into several hundred thousands. Those cards, with very complex formulæ, at the present time, are all written in the grain system, whether it be the apothecary's or the avoirdupois, so that to all intents and purposes the working formulas in all our laboratories at the present time are based upon the grain.

Now, to adopt the metric system or the gram as our unit, means a complete revision with an enormous amount of calculation. That, in itself, is a stupendous task, involving time and expense for material. For that reason alone I am not prepared to advocate the acceptance of the gram as the basis for calculating these equivalents.

There is another reason. Regardless of all that has been done, said or advocated during the past 20 years, the pharmaceutical and medical profession of the U. S. are not prepared to adopt the metric system. It is one of those things that cannot be forced. It will come in the course of time, but it will not come within the next 5 years or perhaps 10 years. It may require the raising and education of a new generation of scientists, pharmacists and physicians.

That being the case, I think we should adopt the grain or retain the grain as the basis of our calculation. I think, in the second place, we should continue in future, as we have in the past, and perhaps to a still greater extent, to use the double system where the size of the label will permit, but to have the doses based upon the grain standard, and to incorporate in parenthesis, the equivalent in the decimal system. That could be extended also to the use of fractions of a c.c. as well, because it is just as necessary in liquid measure as in dry.

A Proposed Plan of Action

In the third place, to get this thing down to a practical working basis, I do not think we are dependent upon a standard system worked out by the Bureau of Standards or by the Metric Association or by any one else. It seems to me that this is a task that concerns us as manufacturers who are going to use the labels and market the goods, and I think that the proper thing to do is for a properly accredited committee to sit down and work out for us a table of equivalents covering those units and those fractions that are most commonly employed, because it is the fractions of the grain and minims that give us the most trouble.

We all know that in dealing with very small tablets we have the ordinary system of eighths and sixteenths, quarters, halves, three-quarters and grains. Turning to the ordinary decimal system, we have tenths, twentieths, thirtieths, fortieths, fiftieths, sixtieths, seventieths, eightieths, ninetieths, one hundredths, etc. A number of those fractions are going to be odd. We have not deliberately chosen the use of the odd fractions, but the doctors have, and we cannot deny the doctor a dose of a hundred and fiftieth of a grain of sulphate of atropine if he wants it.

So I would suggest that this Committee sit down and write out a tabulated statement of the grains and fractions ordinarily used, and then make the calculation converting those into grams and fractions of grams in the right-hand column, and then exercising common sense, cut out the use of infinitely small decimals in the gram column, and thus give us what we would call a sensible equivalent for the fraction of a grain or multiple of a grain.

If the committee would submit this tabulated statement to us in the course of two or three months, we could arrive at a proper double system, taking the grains or fractions of a grain and giving the equivalent in grams or fractions of grams. It will not serve for the Committee to say "Adopt the grain as your basis." They must write out a tabulated statement and include all these various fractions and multiples of grains commonly employed by pharmacists and doctors in expressing doses.

Motion Adopting Dr. Francis' Proposal

MR. STOFER: I move that such committee be appointed.

DR. FRANCIS: You have heard the motion, that the Executive Committee be requested to appoint a committee which shall proceed

to draw up a tabulated statement based upon the use of minims and grains, giving multiples and fractions of the same, and which shall submit, as a part of this tabulated statement, equivalents in the metric system; this to be distributed to the Association, looking to the final adoption of a uniform system of equivalents. (The motion was adopted.)

The Objectionable Term "Mil"

DR. FRANCIS: The U. S. P. Revision Committee at its last meeting adopted the use of the term mil, and our Pharmacopoeia, in our estimation, is laboring under a serious handicap, because all through its pages we have a repetition of this term "mil." I think it is an abomination and even its earnest advocates are willing to abandon it. They have not found it superior to the original c.c. to which we had become accustomed. Some of us have been foolish enough to adopt the term "mil" on our labels. I think it would be wise for the Scientific Section to recommend to the Revision Committee the discontinuance of the term mil, and for lack of something better, a return to the established term, c.c. I wonder if that strikes a sympathetic vein on the part of any of you gentlemen?

A Confusion of Terms

DR. ENGELHARDT: I agree with Dr. Francis in regard to the term "mil." There is not another country in the world where this abominable term has been adopted. I understand that the word "mil" is used for some other units also and, consequently, all kinds of mix-ups are liable to take place. We certainly should discontinue the use of the word "mil" for "cubic centimeter."

DR. FRANCIS: It may mean a millimeter or a milliliter, or minims. That is another objection.

DR. HOSKINS: We had such a case, the term was confused with minims, and we had quite a time explaining the thing to a physician.

Action by the Section

MR. STOFER: You suggested that a resolution be passed or some action be taken; why not refer this subject to the incoming Executive Committee of this section, in order that the subject may be placed before the Revision Committee at the earliest possible moment before

they begin any work? I admit that the term "mil" has always bothered me, but it has always been a matter of wonderment to me why mil was arbitrarily adopted when, for 25, 30 or 40 years, we have always thought in terms of c.c., and I quite agree that it should be changed.

DR. FRANCIS: That could be taken care of by having this Section instruct the Board of Control to communicate to the Revision Committee of the National Formulary and the Pharmacopoeia the fact that this Section is opposed to the use of the term "mil" and prefers the use of the term "c.c.," formerly employed.

MR. TAILBY: I make such a motion.

DR. LLOYD: When the term "mil" appeared, I could not accept that this term was either desirable or a necessity. Whenever a change is made, it brings confusion, and often great trouble. It may perhaps result in great expense in labels and print, a not unimportant feature to business men that professional men are spared, and often do not comprehend. I think that the record of the term to the present time indicates that the term "mil" has not been generally accepted by physicians, pharmacists, chemists or the scientific people of this country, and I believe it desirable to drop the word "mil," and go back to the term previously employed, that was pretty well established.

The motion was adopted.



THE ELECTRON THEORY

An Address Delivered Before the Scientific Section at the Ninth Annual Meeting of the American Drug Manufacturers Association

BY PROF. MATTHEW STEEL

1. Introduction. For many centuries man has concerned himself with "the ultimate constitution of matter," and in recent times with "the nature of electricity," and with "the connection between electricity and matter." There have been many hypotheses and theories advanced from time to time in regard to these great problems. Some of the theories were soon discarded, whereas others more or less have stood the test of time. Our knowledge of the ultimate constitution of matter and electricity has made rapid progress during the last three decades. A series of experimental discoveries has been responsible for this advance. There have been many surprises for the investigators, both from the remarkable nature of the phenomena exhibited and from the laws controlling them. Each time a new discovery has been made light has been thrown not only on the problem under investigation, but often on other apparently disconnected problems. Indeed, a number of times in attempting to solve one problem, the results obtained have been of greater value from the light thrown on other phenomena.

Atom a Complicated Structure

The recent experiments have led to the view that the constitution of the atom itself is very complex, but at the same time they have confirmed the old theory of the discontinuous or atomic structure of matter. In brief, the study of the discharge of electricity through rarified gases and the study of the radio-active substances have not only supplied strong experimental support of the fundamental ideas of the atomic theory of matter, but they have also indicated that the atom itself is not the smallest unit of matter, as was formerly supposed, but is a complicated structure made up of a number of smaller bodies.

Before considering the modern conception of the composition and structure of the atom, let us briefly review the more important experimental discoveries that have led up to this conception.

Birth of Electron Theory

It is generally conceded that the modern conception of the nature of matter had its birth nearly a century ago in the work of Michael Faraday upon electromagnetism and the conduction of electricity in solution. His discovery was of such transcendent importance that it

was bound sooner or later to lead up to our present ideas upon matter and electricity. It was, that whenever two metals or other elements of the same valency are deposited or evolved in the same electrolytic cell, the amounts of electricity consumed, as measured by Lane's unit jar or other instruments, are inversely proportional to the atomic weights of the elements. Or, in other words, that the electricity attached to every atom of a given valency is the same, that is to say, if a metal is divalent its atom is associated with twice the atomic quantity of electricity as that of a monovalent atom.

Commenting upon this discovery in his Faraday lecture, Helmholtz said:

"If we accept the hypothesis that elementary substances are composed of atoms, we cannot avoid the conclusion that electricity, positive as well as negative, is divided into definite elementary portions which behave like atoms of electricity."

A number of years later an Irish physicist, G. J. Stoney, at the Belfast meeting of the British Association, drew attention to the "atom of electricity" as one of the three fundamental physical units of nature (the others being the velocity of light and the constant of gravitation), and gave an approximate calculation of its value. He said:

"Finally nature presents us in the phenomena of electrolysis with a single definite quantity of electricity, which is independent of the particular bodies acted on. To make this clear I shall express *Faraday's Law* in the following terms: which as I shall show, will give it precision—viz. for each chemical bond which is ruptured within an electrolyte, a certain quantity of electricity traverses the electrolyte which is the same in all cases."

He called this quantity of electricity an *electron*.

He calculated the actual charge by dividing the quantity of electricity required for the electrolysis of 1 c.c. of hydrogen by the number of hydrogen atoms in 1 c. c. as given by Lochschmidt, and finds 10-20 "amperes" (now called absolute electromagnetic units of quantity). This figure compares well with the latest value for the electron.

Cathode Rays

2. Cathode or Lenard Rays. A great impetus to the solution of this subject was initially given by the experiments on the *cathode rays*.

W. Hittorf in 1869 showed that if a solid body—say a Maltese cross made of mica—is placed between the cathode and the anode in a high vacuum tube, i. e., a tube containing a highly rarefied gas, a true shadow appears on the glass; the shape of the cross shows that

something must travel from the neighborhood of the cathode in straight lines. This "something" which causes the phosphorescence of glass was called by E. Goldstein (1876) *cathode rays*. Hence, the cathode rays travel in straight lines normal to the surface of the cathode; and they will cast a well-defined shadow if a solid object be placed between the cathode and the wall of the vacuum tube.

The cathode rays were studied in detail by Sir William Crookes. He showed (in 1879) that cathode rays can exert mechanical pressure. He did this by arranging the stream of cathode rays so that they would strike the upper vanes of a little paddle wheel which then rolled horizontally along a pair of parallel glass rails, away from the cathode. By reversing the electric current, the wheel would stop and then revolve in the opposite direction. By directing the cathode rays on different minerals, a beautiful phosphorescent effect was obtained. Again, he showed that the cathode rays raise the temperature of bodies on which they fall. This he did by focussing the cathode stream on platinum by means of a cathode shaped like a concave mirror. The metal became white hot. This heat is hot enough to char diamonds. Crookes also showed that if the cathode stream was allowed to impinge on white rock salt or lithium chloride that these salts assume a violet color. Hence, cathode rays can produce physical or chemical changes. About 1886 Crookes became convinced that cathode rays are negatively electrified projectiles endowed with a high speed of motion. But he was unable to give positive proof of his ideas.

Hertz discovered that cathode rays can pass through thin metal plates several microns thick and Lenard in 1894 showed that they can escape from the tube wherein the discharge takes place through a thin metallic plate strong enough to support the pressure of the atmosphere.

Jean Perrin in 1895 demonstrated that "the cathode rays carry negative electricity with them into a completely closed box, and that they are, moreover, deviated in an electric field." He also found that it was absolutely impossible to separate the electricity from the rays, even by causing them to pass through a thin metallic plate.

About this time the study of the cathode rays was taken up by Sir J. J. Thomson and in 1897 he, as a result of epoch-making experiments, astounded the world by stating that what Crookes called "radiant matter," i. e., the cathode rays, is a stream of negatively charged particles or corpuscles which have been formed by *the disintegration of atoms* of the gas in the vacuum tube.

The Mass of Electrons

As previously stated, the term *electron* was applied by G. J. Stoney to designate the unit or atomic charge of electricity, and it is now almost universally applied to the sub-atomic particles supposed to stream from the negative electrode when a discharge is passing through an attenuated gas. No difference can be detected in the corpuscles from the different gases, and hence it is inferred that the *electrons are common constituents of all gases*. If the stream of electrons be directed into an atmosphere of moist air, each electron serves as a nucleus about which moisture collects, and the size of the drops of water formed can be determined by the rate at which the fog which they compose settles under the pull of gravity. Now, since it is easy to measure the total amount of water which condenses, the number of droplets in the fog can be calculated from a knowledge of their size. And since each droplet corresponds to a single electrical particle the number of droplets gives a measure of the number of particles which are present, and hence permits the calculation of the charge which they individually bear.

Knowing the amount of electricity carried by each particle in the cathode rays, it is possible to separate the effect of the charge from that of the mass, and hence to ascertain the magnitude of the latter. The most refined measurements of this sort show that the cathode ray particles, which are now called *electrons*, have a mass which is about one eighteen-hundredth that of the lightest known atom, that of hydrogen.

Nature of Electron Independent of Source

Sources of electrons other than the cathode rays are now available, and the nature of the electrons has been satisfactorily proved to be independent of their source.

Properties of Röntgen Rays

3. Röntgen Rays. A discovery that has had a direct bearing upon the nature of matter was made by Röntgen in 1895. He found that when an electric discharge is passed through a Crookes or Lenard tube, there is given off from the tube a hitherto unknown radiation which was characterized by its penetrability. The radiation will pass through substances which are entirely opaque to ultra-violet rays. These Röntgen or X-rays, as they are called, like the cathode rays, excite fluorescence of various kinds, and they affect photographic

plates. They differ from the cathode rays in that they carry no electrical charge and hence they are not deflected either by electrified bodies or by magnets. Moreover, they ionize gases through which they pass. Their radiation was long thought to differ fundamentally from that of ultra-violet light. Röntgen's idea that they are produced by radiations in the ether was not accepted, owing to experimental difficulties in proving the phenomenon.

Stokes Theory of X-Ray Disproved

Up to eight years ago Sir George Stokes' theory was more generally accepted. He reasoned that the X-rays are a series of pulses in the ether, emitted at irregular intervals, since they are produced by cathode rays striking against the walls of an exhausted tube. The cathode rays which are highly charged particles, rain down upon the walls of the vacuum tube, and each particle sends up a pulse in the ether. The penetrating power of the rays is explained by assuming that the pulse is lost before there is any harmonious vibration between the ether and the molecules.

The researches of Laue, Bragg and others in the last few years have changed our conception as to the nature of the X-ray vibrations. If it could be proved that the X-rays are a series of regular vibrations in the ether, but having extremely short wave-lengths, then all the properties could be accounted for. Such has been shown to be the fact.

Light is diffracted and broken up into spectra by a grating made by ruling with a diamond point a large number of parallel lines, either on glass or other suitable material. Such a grating has from ten to forty thousand lines to the inch.

Since it is impossible to make a grating with a sufficient number of parallel lines to the inch to reflect the X-rays, provided they could be reflected, it was necessary to find a suitable substance in nature. In 1912 Laue conceived the idea that the regularly arranged particles of a freshly broken crystal ought to furnish just such a space-grating. This was soon proved to be the case. In short, it has definitely been established that, when X-rays are caused to fall upon such a crystal, the rays are broken up by the spaces between the molecules making up the crystal into spectra. This means that X-rays are not a series of irregular pulses in the ether as Stokes supposed, but like light, are a series of regular vibrations, differing only in being of shorter wave length.

Greater Knowledge of Crystal Structure

This series of experiments is not only giving the desired result in regard to the X-rays, but is also giving us pictures of the internal structure of crystals. When X-rays after reflection or refraction by a crystal are allowed to impinge upon a photographic plate or a fluorescent screen, patterns are produced whose form changes as the crystal is rotated in different directions and from a study of the patterns thus obtained with the crystals held in different positions, *the arrangement of the atoms and the molecules within the crystals can be determined*. In this way it has been found, for instance, that in the diamond each carbon atom throughout the whole crystal is surrounded by four others so as to form a regular tetrahedron, a discovery that is of much interest to chemists.

Positive or Canal Rays

4. Positive or Canal Rays. When a perforated cathode is employed in a vacuum tube for producing cathode rays, a stream of violet passes through the perforations or canals and emerges behind the cathode on the side remote from the anode, and hence these are called canal rays. The canal rays have been investigated in the same way that the cathode rays were studied. The results indicate that the canal rays are streams of particles the majority of which are positively electrified, hence the term *positive rays* is replacing the older name of canal rays. The streaming particles travel in straight lines and produce phosphorescence (usually violet) when they impinge upon glass, etc. The speed of the positive rays, or electrons, is usually much less than that of the negative electrons; and they are not so sensitive to magnetic influences. Measurements similar to those used for the cathode rays show that the positively charged particles must be of atomic dimensions, and in no case is the mass of the positive corpuscles less than that of the hydrogen atom. Remembering that, so far as we can tell, all electrons are the same, and have a mass 1,830 times less than that of the hydrogen atom, while the mass of the positively charged particles depends upon the nature of the gas is virtually the same as that of the atom from which it is derived, it is probable that *when a gas is ionized, one or more negatively charged particles, electrons, are expelled from the atom, and the corresponding positively charged nucleus remains*.

Radioactive Substances

5. **Radioactive Substances.** Becquerel aRys. A form of radiation which to some extent resembles the X-rays was discovered by Henri Becquerel in 1896. On exposing uranium compounds to light, they have the property of emitting an invisible radiation which, like the X-rays, will pass through many substances that are impervious to light, such as black paper and thin metallic plates. After Becquerel made his discovery in regard to uranium, several other substances were found to have this same property—of which radium is the most powerful. In fact, radium is at least a million times more radioactive than uranium.

Radioactivity and the Atomic Theory

The phenomena of radioactivity are impossible on the basis of the older atomic theory of chemistry, though they add new proofs of the atomic structure of matter. To quote E. E. Fournier d'Albe: "They are largely electrical phenomena, and are quite inconsistent with the view, sometimes tentatively put forward, that electricity, like heat, is a mode of motion. The phenomena of radioactivity have confirmed the atomic structure theory of matter, but they have abolished the dogma of the indestructibility of the atom. They have created a new department in chemistry by giving us access to the hidden recesses of the atom itself. They have also established the atomic structure of electricity, substituting the indivisible and indestructible electron for the chemical atom, now no longer considered either indivisible or indestructible."

Electron Theory Indispensable in Radioactivity

In the ordinary electrical phenomena the electron theory not only explains the observed facts much better than any other theory hitherto put forward, but unifies all facts in a manner hitherto unapproached, and forms a firm basis for further research. In proceeding, however, to radioactivity, we find that the electron theory becomes paramount and indispensable, and seems likely to unify the greater part of physics and the whole of chemistry.

Four Kinds of Rays

When radioactive substances were critically examined, it was found that their radiations usually consisted of three kinds, one that was not deflected or deviated in the magnetic field, another that was

considerably deviated in the magnetic field, and a third that is only slightly deviated in the magnetic field, but had great penetrating power. These have been named: alpha rays, beta rays, and gamma rays. A fourth kind of radiation, the delta rays, will also be considered.

Nature of Alpha Rays

The *alpha rays* are given off by all radioactive substances. They are somewhat deflected in the magnetic field. They have very small penetrating power, being easily absorbed by very thin layers of matter. They have great power to ionize a gas, rendering it a conductor. The rays ionize to about one hundred times the extent of the *beta* and *gamma* rays together. They have but little effect on a photographic plate, but they produce phosphorescence in certain substances, especially zinc sulphide. The alpha particle has a mass of the order of magnitude about four times that of the hydrogen atom. These properties are almost all identical with those of the *canal or positive rays*. Recent researches of Rutherford have given positive proof that the *alpha rays are nothing but helium*, a gaseous element that was first found by spectrum analysis in the sun. The alpha particles carry two positive charges, and move with a velocity about one-tenth that of light.

Nature of Beta Rays

The *beta rays* are given off by all radioactive substances, with the exception of polonium. They are easily deflected in the magnetic field; they affect the photographic plate; they excite phosphorescence; they ionize a gas; they are negatively charged particles; they have moderate power to penetrate matter; they have a mass about one eighteen hundredth that of hydrogen; they have a velocity about one-half that of light. Now, all these properties are identical with those of the *cathode rays*, except the velocity at which they travel. The *beta rays* are, therefore, considered to be swiftly moving *electrons*.

Nature of Gamma Rays

The *gamma rays* exist where the *beta rays* exist. They are not deflected in a magnetic field at all; they have great penetrating power; enough after passing through a foot of iron to be detectable by the electroscope; they have considerable power to affect a photographic plate, much greater than that of the alpha or beta rays; they have a medium power to ionize a gas; they excite phosphorescence; *they are not material, like the alpha or beta rays*. They are, in fact, so similar to the X-rays in their properties, that the most probable theory as to

their nature is that they are a very penetrating form of *X-rays*, produced by the *beta rays*.

Delta Rays

The *delta rays* have been shown to be slowly moving beta rays.

A New Atomic Structure Theory

6. It is not only the radioactive elements that emit electrons (beta rays). The atoms of all elements are able to lose temporarily, or under special conditions, a limited number of electrons without breaking up or in any way becoming unstable. This would point to the conclusion that all substances are composed of the same material, and that they merely differ from one another in the extent of the condensation and number of groupings of the ultimate particles. As a result largely of investigations published since 1912, a theory of atomic structure has been evolved, which is able to interpret satisfactorily a considerable number of important relationships concerning the chemical elements. According to this theory, every atom is composed of a positively charged nucleus, in which most of the mass of the atom resides, surrounded by rings of revolving electrons. The *nucleus* is itself composed of a definite number of *units* of positive electricity associated with a certain number of nuclear electrons, the positive electricity being always in excess, however. The elementary units of positive electricity are supposed to be identical with the nucleus of the hydrogen atom, that is, they are hydrogen atoms minus one electron each, i. e., *hydrogen ions*.

Atomic Mass

The mass of an atom, while due chiefly to the number of hydrogen nuclei which it contains, will not necessarily be an integral multiple of the mass of the hydrogen atom (Prout's hypothesis) because, according to the electromagnetic theory, the total mass of a body made up of positive and negative units will depend somewhat upon the manner in which they are packed together, and upon the energy change accompanying the formation of the atom. If proper allowance be made for the "packing effect," however, a very exact multiple relationship can be shown to hold for a considerable number of elements.

The Nucleus of a Helium Atom

The appearance of the helium atom almost intact in so many radioactive changes indicates that the nucleus of this atom constitutes

a secondary unit of positive electricity of great stability. The nucleus of the helium atom, or an *alpha particle*, in other words, is supposed to be made up of four hydrogen nuclei united with two nuclear electrons.

Atomic Numbers

Since the atom, as a whole, is electrically neutral, the positive charge carried by its nucleus must be equal to the number of electrons exterior to the nucleus. This number is called the *atomic number* of the element and is a very important and characteristic constant, more characteristic even than its atomic weight, since the principal physical and chemical properties of the elements are determined by their atomic numbers, and not by their atomic weights. Starting with hydrogen, the atomic numbers of the elements run from hydrogen as 1, helium as 2, carbon as 6, oxygen as 8, etc., up to uranium as 92.

Hydrogen-Helium Nuclear Theory Illustrated

The following examples illustrate the *hydrogen-helium nuclear theory*:

Argon—The at. wt. is 39.88. 10 He equals 39.90.

Carbon—The at. wt. is 12.00. The combination (2He plus 4H) gives the atomic weight 12.008.

Oxygen—The at. wt. is 16.00. The combination (3 He plus 4 H) gives 15.996.

Fluorine—The at. wt. is 19.00. The combination (3 He plus 7 H) gives 19.02.

Electron Theory Explains Cations and Anions

7. When acids, bases and salts are dissolved in water they break down into positively charged constituents known as *cations* and negatively charged constituents known as *anions*. The electron theory explains this splitting up of the molecules into separate constituents carrying electrical charges more clearly than any other theory that has yet been advanced.

We have long known that an acid is a compound which in the presence of a dissociating solvent yields hydrogen cations, and that the remainder of the molecule, as a whole, was negatively charged and formed the anion of the acid.

We likewise knew that a base is compound which, in the presence of a dissociating solvent, yields a hydroxyl anion, which imparts to

the solvent its basic characteristics; and that the remainder of the molecule is positively charged.

We knew, further, that salts are substances which dissociate in a suitable solvent into positive and negative ions other than hydrogen and hydroxyl.

We were not able, however, before the conception of the electron theory, to formulate any satisfactory idea as to how certain molecules broke down into atoms or groups of atoms carrying electrical charges. In other words, we had no satisfactory explanation of the source of the positive electrical charge acquired by the cationic portion of the molecule or the negative electrical charge acquired by the anionic portion of the molecule.

The electron theory explains the riddle. An atom is made up of an equal number of positive and negative particles of electricity. Since molecules are made up of atoms they also must have equal numbers of positive and negative charges. Now, when a dissociating solvent, such as water, effects a rupture of the molecule, one atom, or group of atoms acting en masse, takes an *electron* from the other atom or group of atoms and becomes negatively charged. *An anion is, therefore, an atom or group of atoms that has gained an electron.*

The atom or group of atoms that has lost the electron in virtue of this loss becomes positively charged. So, *a cation is an atom or group of atoms that has lost an electron.*

A bivalent anion is one that has gained two electrons; and a trivalent anion is one that has gained three electrons, and so on.

A bivalent cation is one that has lost two electrons; a trivalent cation is one that has lost three electrons, and so on.

Since most chemical reactions take place between ions, the value of the electron theory is very apparent.

Chemical Affinity in Terms of Electron Theory

8. Chemical affinity may perhaps be regarded as another expression of the fact that different kinds of atoms have varying attraction for electrons. For many years chemists have found it convenient to divide the chemical elements into three not very clearly defined groups, those which are characteristically electro-positive, those which are characteristically electro-negative, and those which are either electro-positive or electro-negative according to surrounding conditions. Hydrogen and the metals are the most pronounced electro-positive ele-

ments, while oxygen and the halogens are among the most powerfully electro-negative. The former easily lose electrons, whereas the latter readily appropriate additional electrons. Of course, these positively and negatively charged atoms, or ions, will tend to combine, and this electrical attraction between them, might be said to constitute chemical affinity.

Same Element May Be Positive or Negative

May any element be positive or negative? Yes. We cannot state that any group of elements are always electro-positive, nor that another group is always electro-negative. Nor can we state that only atoms of opposite sign will combine with each other. This fact has been used many times as a means of refutation of the electrical attraction theory of chemical affinity. The electron theory overcomes this difficulty, along with others, for any atom will obviously become negatively charged if it can appropriate an electron, or positively charged if it loses one. Now, since no two elements have the same attraction for electrons, if we were to mix two characteristically positive elements under special conditions, we might readily conceive that one of these elements might lose some of its electrons, since the other element has the greater attraction for them. Mixed with another element that has a lesser attraction for electrons, the atoms which formerly lost electrons would now gain them. In brief, the terms electro-positive or electro-negative are only relative, when applied to any group of elements.

Attraction Between Atoms of Same Kind

There has been a great deal of speculation as to the nature of the attraction between the atoms of the same kind, such as a pure element. The most satisfactory explanation that has yet been offered is, that the positive and negative charges in any atom are unevenly distributed, and consequently the surface presents a sort of mottled appearance. Hence, when two atoms of the same kind come in contact with each other, the negative portion of one atom will attract the positive portions of the other atom, and vice versa.

The Inert Elements

The *inert elements*, such as argon, helium, etc., are supposed to have neither a very strong tendency to appropriate electrons, nor to lose those which they possess.

Electron Theory Explains All

If time permitted we might show how the electron theory explains other chemical and physical phenomena better than any other that has yet been advanced. In the words of E. E. Fournier d'Albe: The electron theory, with its logical corollary—the recognition of electricity as a fundamental quantity—gives a consistent and comprehensive view of all the facts of electricity and magnetism hitherto accumulated."

Discussion on Dr. Steel's Address

What Becomes of Broken Down Molecules

MR. DUNNING: What becomes of these broken-down molecules, what is their chemical nature after they are broken down? That is in the case of any substance; for instance, sodium chloride; its solution produces electricity when contained in a battery, does it not?

DR. STEEL: Well, not exactly.

MR. DUNNING: I understand you to state that when chemicals are brought in solution they dissociate and there is an interchange of ions between the molecules.

DR. STEEL: Yes.

MR. DUNNING: Now what becomes of those decomposed molecules? What do they do and where do they go?

DR. STEEL: When sodium chloride, to use your illustration, is brought into contact with its greatest dissociating solvent, water, it is partly broken down into sodium ions and chloride ions. The chloride ion is an atom of chlorine plus the electron which it took away from the sodium, and as such, acts as a molecule. The sodium ion, instead of being metallic sodium, is an atom of sodium minus an electron. We know that neither sodium ions nor chloride ions possess the same properties that the sodium or the chlorine do. These substances are held in solution. In the case of sodium chloride, when dissolved in water, which is a highly dissociating solvent, in molar concentration (a molar solution is the molecular weight of a substance expressed in grams dissolved in a liter of water) will be, I believe, a little over 90 per cent dissociated into sodium ions and chloride ions; the rest of the substance will be in solution in the form of sodium chloride molecules. If we concentrate that solution we will have a greater number of sodium chloride molecules and a lesser number of sodium ions and

chloride ions in the solution. We do not lose any electricity when dissociation takes place, the negative electrons that are lost by the chlorine atoms are taken up by the sodium.

MR. DUNNING: But in the case of sodium chloride, when a current of electricity passes through a battery and it is made to do work, that electricity never goes back to the original solution, does it? It is converted into some other power; it is lost, isn't it? The ions produce the electric effect, and ultimately a mechanical effect, do they not?

DR. STEEL: You see when the electrons are being shot off, they are shot off or broken up with an enormous force. Electricity is really made up of these particles. We do not know what these particles are, we call them positive and negative particles for the lack of better names. When you introduce a substance into a battery the atom which has lost an electron, in this case the sodium, travels towards the cathode. When the cation arrives at the cathode, it takes up an electron from the latter and an electrically neutral atom is produced. At the other terminal the anion will lose its extra electron and become atomic again.

Changes Produced by Losses of Electricity

MR. DUNNING: If you put a hundred grams of sodium chloride in solution and produce electric effects from it, would that hundred grams continue to produce that electric effect indefinitely, or would there be any loss of matter or any change in it, any decomposition in the molecule or the production of any different substances or any different molecules?

DR. STEEL: You want to know whether there is any actual loss of electricity?

MR. DUNNING: Well, if there is any loss of electricity that would mean the breaking down of the molecule into something else. For instance, helium is produced from uranium; the question that occurs to me is, are there always other substances being produced during such action?

DR. STEEL: The answer is probably yes, there are changes being produced of that nature, if we carry it to that extent, but, as a rule, a substance can lose a certain amount of its electron without in any material way losing its identity.

If it loses its positive electricity, it would change the structure of the matter.

Going back to radio activity, the radio active elements, such as radium, are continually breaking down and throwing off particles of helium. When it throws off a particle of helium, the portion that remains behind will not be radium, it will be a substance known as an emanation which has an atomic weight of four less than the original substance, and the other breaks down into four or five types of radium and continues to break down until it finally becomes ordinary lead. It goes from an atomic weight of 226 down to 206.

MR. DUNNING: There is just where I want to make my point; is not that same thing probably true in the case of sodium chloride that we are discussing?

War Retarded Scientific Work

DR. STEEL: It is probably true, but so far as I know, there have not been any researches that have definitely proven that point. A great deal of this work has been done since 1912. The discovery in 1912 of the nature of X-rays gave a great impetus to the work. The war unfortunately interfered with these studies. The Messrs. Bragg, who were prominent workers in this field, went into the war. Many of England's greatest scientists went into the war, and you recall England had to recall them as she considered the scientific work to be of greater value to the nation. Nevertheless, there was a great setback to these researches during the war. At the present time the work is going on so fast that by the time a book goes to press it is out of date.

Breaking Down of Radioactive Substances

MR. DUNNING: Even if my idea and suggestion were true, the changes would not be so evident with the sodium chloride as they are with uranium.

DR. STEEL: The study of the radioactive substances is one of the most interesting studies that one could take up, even if we have not had a highly mathematical training. There are a number of books that have been written in a popular form on this topic.

As I recall it offhand, ordinary radium would break down to half its weight in a period of about 2,500 years; in other words, a gram of radium 500 years B. C. at the present time would be just about half that weight. Now the emanation, the substance that comes off next, will break down to half its weight in about 7 days. Some emanations lose half their weight in a few minutes.

The Heat of Radium

Radium itself is very interesting from the standpoint of the heat that it gives off. The amount of heat that is given off in the breaking up of radium is almost inconceivable. Radium is about two degrees hotter than its surrounding atmosphere, and it will continue to be so as long as it continues to break up. It has been calculated that enough energy would be emanated in the breaking up of one gram of radium, or the breaking up of a gram of any element into the positive and negative electricity that make up this gram of matter, to carry a ship of the type of the *Mauretania* at full speed for a period of 30 days.

Losses in Sodium Chloride Battery Solution

MR. DUNNING: Doesn't it seem theoretically possible that in this sodium chloride solution, which is made up as a battery and has produced electric force, does it not seem possible that that solution is thereafter different, contains a different molecule—a modification of the sodium chloride?

DR. STEEL: It is possible, but there is supposed to be a corresponding recurrence there, that is, a re-exchange, that is that the chlorine gets back its ion again; I mean that the sodium gets back its ion and the chlorine loses it, and we have the substance reacting again, but something must be broken up.

MR. DUNNING: But something is lost?

DR. STEEL: Yes, but what it is I am not able to answer.

MR. DUNNING: If it takes it from the water, the water loses it?

DR. STEEL: The water loses it. This theory does away with the absolute indestructibility of the atom; something is lost, as you state, because the indestructibility of the atom is done away with.

MR. DUNNING: That is what struck me, that there must be something lost, and something new formed in the solution, if the theory works.

Passing Rays Through Spar Crystal

DR. LLOYD: In the beginning you spoke of the passing of those three rays through spar crystal; what is the effect where they pass those rays through doubly refractive spar?

DR. STEEL: I do not recall ever having seen any definite research along that particular line; whether there would be any definite change produced by having it doubly refracted, but I believe there would not

be any very great change, only that the substance that would cause the defraction in the first place may not deflect all the material, and the other portion possibly would be defracted in the opposite direction. Whether that is true or not, I cannot state.

DR. FRANCIS: It seems to me that it is along the lines of the development of this particular physical research, or physical-chemical research, if you will permit that term, that there may lie an inkling of the truth of this other very great problem which is so intimately connected with our industry, that is the physical-chemical problems involved in the absorption of medicinal agents whereby we bring about the curative changes we seek in medical practice.

We effect those changes in the body of the patients that we desire, but notwithstanding the elapse of these thousands of years, we know practically nothing as to just how these medicinal agents produce such effects. We do not know how they are absorbed, how they act upon the tissues, what part they may play in bringing about metabolic changes, and it seems to me that up to the present time there has been very little light thrown upon the possible avenue of approach. It may be that this avenue of approach is being opened to us by just such splendid work as that which Dr. Steel has been speaking of.



COLORIMETRIC ESTIMATION OF ADRENALIN

By
WILBUR L. SCOVILLE

Adrenalin (or epinephrin) produces with oxidizing agents and with alkalis colors, usually intense, which vary from an orange to a red or brown, or a violet to a red. Under definite conditions the intensity of the color is proportionate to the amount of adrenalin present and methods have therefore been recommended for the quantitative estimation of this base in suprarenal glands by color process.

Unsatisfactory Colorations

The coloration with alkalis is slow in appearing and is modified by the presence of other organic matters and so has not proved satisfactory for quantitative work.

With ferric chloride an intense green is produced, which fades quickly and is therefore not satisfactory for quantitative comparisons.

With mercuric chloride an intense red is obtained which has been offered by Comesatti as a colorimetric method, but the color develops slowly and is easily changed by foreign substances. Potassium persulphate, potassium dichromate, iodine, potassium permanganate and potassium ferricyanide have at various times been tried with some success.

U. S. P. Test for Dried Suprarenal Glands

The U. S. Pharmacopœia adopted a modification of the permanganate coloration, but using manganese dioxide for producing the color. This process, as adopted for the estimation of adrenalin in dried suprarenal glands, consists in macerating 0.01 gm. of the powdered glands in 10 mls. of distilled water containing 0.005 gm. of manganese dioxide for one hour, then filtering and comparing the filtrate colorimetrically with prescribed mixtures of cobalt chloride and gold chloride solutions which correspond to 0.2 per cent, 0.4 per cent, 0.6 per cent and 0.8 per cent of adrenalin respectively.

The color produced is a brownish-orange and since the red shade intensifies more than the yellow with increasing amounts of adrenalin, it is necessary to vary the proportions of the two chloride solutions as well as their dilutions in order to match the colors. This shows that the color of the oxidized adrenalin and that of the mixed chloride solutions is not identical, but is close enough for approximate matching

No definite temperature is directed for the test, although in an oxidation process the temperature may be expected to have an influence. To ascertain whether the temperature is important the test was made on a solution of pure adrenalin at temperatures of 15°C., 25°C., 38°C and about 80°C. The color produced in an hour at 38°C. was decidedly the most intense and by comparison in a Duboscq colorimeter the color produced at 15° was 37 per cent as strong and that at 25°C. was 83 per cent as strong. At 80°C. the color was not comparable, the red shade having disappeared, leaving a dirty brown solution which would not compare with the others in any dilution. Repeating the test gave essentially the same results, showing that temperature is an important factor in this test and that more than room temperature is needed. Since the color produced is compared with solutions of mineral salts not affected by ordinary changes in temperature, it is obvious that an error up to 40 per cent can be made by this factor alone.

Influence of Acid and Reducing Agent on Color

The Pharmacopœia applies this test to dried suprarenal glands only, adrenalin as such not being recognized. But adrenalin is used far more than the glands in medical practice because it is definite in strength and activity. Since adrenalin is extremely sensitive both to alkalis and to oxidizing agents it is necessary to insure against change by making its solutions sufficiently acid to at least neutralize the alkali dissolved from the glass in which it is stored and to either replace the air with an inert gas or to add a reducing agent to the solution. Thus commercial solutions always contain an excess of acid and many of them a reducing agent also. It is therefore desirable to learn what influence these agents might have on the color in the test.

The tests were then repeated, using solutions containing 0.09 per cent of hydrochloric acid. This materially changed the color, the red tint appearing quickly but faded rapidly and the solution became brown. As nearly as could be ascertained by comparing colors of very different tints the acid solution at 15°C. was about 30 per cent as strong as the neutral solution at 38°C., the acid at 25°C. about 60 per cent as strong and at 80°C. about 50 per cent as strong. Slight amounts of mineral acid therefore change not only the intensity but the shade of color and the change is more pronounced at 15° than at 25° or 38°. When 0.1 per cent of sodium bisulphite was added the color was almost entirely destroyed.

It follows therefore that the U. S. P. test is not reliable except under definite conditions of temperature composition and acidity and the mineral solutions which are used as standards must be adjusted to such conditions. This the Pharmacopœia has not done.

The Hale-Seidell Test

In 1908 Krauss (Apoth. Ztg. 23,701) recommended potassium iodide as the oxidizing agent, and in 1911 Hale and Seidell (Amer. Jour. Pharm. 83,557) further developed this test in its application to suprarenal glands. The test as recommended by them consists in heating 0.01 gm. of the gland with 5 mls. of N/.025 by hydrochloric acid and 5 mls. of 0.2 per cent solution of potassium iodate to the boiling point, allow to stand 15 minutes, then compare with a mixture of 3 mls. of a 2 per cent solution of potassio-platinic chloride and 9 mls. of a 1.2 per cent solution of cobaltous chloride.

As in the manganese dioxide test the color produced is a reddish orange and the greater the adrenalin content the more intense is the red, so that varying mixtures of the two chlorides are needed for comparison.

On trying this process it was quickly noted that the shades of color varied considerably with different samples of adrenalin solution. In some cases a violet tint instead of a reddish-orange was obtained, making comparisons with the standard impossible. Furthermore the color produced on doubling the quantity of adrenalin did not correspond when diluted one-half to that of the directed quantity. In other words the color varied both in intensity and shade with varying quantities of the adrenalin solution. Again if the solution was heated for a few moments at 100°C. the color was changed.

On increasing the amount of acid in the test a pronounced red-violet was obtained which is very different from the reddish-orange of the Hale-Seidell test. This accounted for the violet tint in some of the tests first made.

The orange tint disappeared when as little as 0.015 per cent of hydrochloric acid was present. When 0.075 per cent of acid was present the purplish tint was less pronounced and when 0.15 per cent was present the color was red-violet.

Effect of Temperature

The reaction was first tested for effect of temperature, tests being run for one hour at 15°, 25° and 38°C. The color was most intense

at 38°C.; at 15° it was 45 per cent as deep and at 25° it was 80 per cent in neutral solution. In acid solution (about 0.015 per cent of hydrochloric acid), it was 55 per cent at 15°, 96 per cent at 25°, and but 30 per cent at 100°C. Thus acid promotes the development of this color at temperatures below 38°C. and fades it at high temperature. It is therefore better to operate this test with acid solutions at a moderately warm than at a boiling temperature.

Further trials disclosed that the greatest intensity of color is reached in about ten minutes at 38°C. and further heating at this temperature for an hour makes no appreciable difference. The presence of sodium bisulphite in the solution diminishes the color in proportion to the amount of bisulphite present. When the adrenalin solution (1:1000) contained a like amount of sodium bisulphite (0.1 per cent) the color was reduced 10 per cent.

Standards

In attempting to match the color (produced in acid solution) by a mineral solution it was found that an ammoniacal solution of cobaltous chloride matches it closely in certain depths.

A solution made by dissolving 0.25 gm. of cobaltous chloride ($\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$) in 10 mls. of water, adding a solution of 2 gm. of ammonium carbonate (U. S. P. in translucent crystals) in 80 mls. of water, and making the solution up to 100 mls., matches the adrenalin color very closely in depths of 25 to 35 millimeters (in a Dubosco colorimeter) but shades more to the red in deeper columns and to the blue in shallower. The ammoniacal cobalt chloride solution therefore differs enough in color to limit its usefulness, but can be used to verify the claim for a 1:1000 solution of adrenalin, provided the test be applied with proper precautions.

Scoville Method

A better standard is pure adrenalin. This can easily be obtained in pure form and is permanent in this condition. The following method is recommended for standardizing solutions of adrenalin.

Dissolve 0.050 gm. of pure adrenalin in 0.5 mil. of normal hydrochloric acid and add water to make 50 mls. of solution (in a volumetric flask).

If the solution to be standardized contain bisulphite, 0.050 gm. of C. P. sodium bisulphite should be added to this standard solution. To 20 mls. of distilled water contained in a small (30-50 mil.) flask,

add 5 mls. of a 1 per cent solution (1 gm. in 100 mls.) of potassium iodate and 0.25 mil. of normal hydrochloric acid. Warm to 38°C then add 0.5 mil. of the standard adrenalin solution and continue the heat for 15 minutes. At the same time an acid solution of the iodate is prepared in the same way, warmed and 0.5 mil. of the solution (1:1000) to be tested is added—or an equivalent quantity of a weaker solution. After 15 minutes at 38°C. (approximately) cool the solutions and compare the colors in a colorimeter.

If the solution which is being standardized is within 20 per cent or 25 per cent of the standard comparisons are easily made. If it differs more than 25 per cent it is better to repeat the test, using more or less of the solution so that the colors will not vary greatly.

It may also be compared with the standard ammoniacal cobalt solution, prepared as above, but it is more necessary to have the two solutions in close relationship with each other and to compare columns of 25 to 30 millimeters in depth. If the adrenalin solution contains bisulphite it will read low on this account.

For estimating the adrenalin in the dried glands, digest 0.100 gm. of the gland in 20 mls. of distilled water to which has been added 5 mls. of the iodate solution and 0.25 mil. of normal hydrochloric acid, for half an hour at 38°C., then filter and compare with the test made at the same time on the standard adrenalin solution. If the gland solution differs more than 25 per cent from the standard an estimate can be made of its strength from which a second test can be made, using enough more or less of the gland to contain about 0.0005 gm. of adrenalin, from which an accurate estimation can be made. In this test the standard adrenalin solution should contain no bisulphite. And in all cases the standard adrenalin solution should be freshly prepared.

The above method has been compared repeatedly with the biological test and has been found to give very satisfactory results. Doubtless the biological method will hold its place as the most reliable method for standardizing suprarenal glands or solutions of adrenalin, but the colorimetric test, when applied to preparations of known acidity and with an allowance, if necessary, for the presence of bisulphite, will be found sufficiently reliable.

BEET SUGAR IN MEDICINAL MANUFACTURE

In December, 1919, we circulated a questionnaire among the members of the Scientific Section to ascertain the experience of our members with beet sugar.

Only four firms reported any experience with beet sugar at all and the conclusions based on their experience was not in agreement at all points.

Use of Beet Sugar in Dry Work

Three reported beet sugar as perfectly satisfactory for dry work, coating pills and tablets, etc. But one firm reported it as unsatisfactory for this purpose because they found "it does not make an air-tight coating as shown in pills containing sulphides, and that when dry, the coating often breaks and peals." Yet this same concern found contrary to ordinary experience that beet sugar "is satisfactory in fluid extracts, fluids, syrups, elixirs, and other liquid preparations." Their experience was almost the converse of the general rule.

Experience With Beet Sugar in Liquids

With respect to liquid preparations two of the largest manufacturers confirm the general impression that "it ferments in liquid preparations containing little or no alcohol or no other preservative—such, for instance, as syrup, wines, and elixirs." A third manufacturer, however, finds it "satisfactory in cough syrups and dark syrups in general, but unsatisfactory in delicate syrups such as hydriodic acid, iron iodide hypophos. compound," in which they note with its use "a more rapid color change and unsatisfactory odor." As stated in the preceding paragraph, the firm who found it unsatisfactory for dry work found it satisfactory generally in liquids.

Accounting for the Difference in Opinion

The experience of the two firms who find the most extensive use for beet sugar is not explained by any change in the methods they employ when beet sugar is used, for they state they use the same as are employed with cane. Nor is it explained by the nature of their specifications, for their specifications only call for beet sugar. With respect to the source, the firm finding beet sugar generally satisfactory in liquids obtain their supply from a different source than is employed by the others, which may or may not account for the difference in their experience.

Fermentation Despite Apparent Chemical Purity

Some have advanced the theory that the general prejudice among pharmaceutical houses against the use of beet sugar is the result of unhappy experiences of many years ago when the processes of refining were much cruder than they are now. But this theory would seem to be controverted by the experience of one very prominent pharmaceutical chemist who says:

"Sugar when perfectly pure (bleached theoretically), has exactly the same chemical constitution, whether it be derived from sugar cane, beets, or from a number of other sources. It naturally follows, therefore, that if sugar is of the same practical purity, it should yield the same results under any given set of circumstances or in any given combination. The writer has said repeatedly that if beet sugar could be obtained of the same degree of purity as the ordinary crystallized cane sugar, that it *must* be indistinguishable in every way from cane sugar and give just as good results under any circumstances. This is the common sense view to take of it.

"Circumstances and experience force me to say very frankly, however, that this theory has not worked out in practice and the general prejudice against the use of beet sugar in liquid preparations containing no alcohol or little alcohol or no other preservative—such for instance, as syrups, wines and elixirs, is based upon practical and in many instances, costly experience.

"Several years ago when the manufacture of beet sugar was first taken up in a practical way throughout the Northern States, our firm undertook its use on a somewhat extensive scale because it could be obtained more cheaply than cane sugar and was more readily obtainable. The mere saving of time and also of the reduced cost in transportation was quite an economical feature. We commenced using a nice, white, crystalline beet sugar in our elixirs and syrups and the result was that we had a perfect epidemic of complaints throughout the country to the effect that our preparations were fermenting and blowing the corks out of the bottles and in some instances, actually blowing the bottles to pieces. As a result, we absolutely cut out the use of beet sugar.

"Now, it has been argued, and with a good deal of reason, that a great deal of the trouble that has arisen through the use of beet sugar in pharmaceutical preparations was due to the fact that it contained some impurities either in the form of chemical salts or perhaps an appreciable trace of albuminoid matter. This looks to be perfectly reasonable but nevertheless, our chemical examination of the beet sugar used at that time, does not warrant any such conclusions.

After the United States entered into the present war, we found it exceedingly difficult to obtain supplies of high grade cane sugar and you may perhaps have reason to know that we, like other pharmaceutical manufacturers, were canvassed by the National authorities. We

had every reason for wishing to employ beet sugar and though we feared the results as a result of our previous experience, we did use a certain amount of beet sugar in making up some syrups and elixirs, but confined ourselves to only a few items until we could gain some further practical experience.

"Now I regret to say that our limited experiments in the use of beet sugar in elixirs and syrups during the past year have been just as disastrous as the very much larger experiments we made some seven or eight years ago. These products sent out to the trade in the usual way have given us trouble on account of fermentation, though in a lesser degree than formerly, but undoubtedly have caused more trouble than similar preparations manufactured in the ordinary routine process by the use of crystalline cane sugar. Knowing what we might possibly expect, we, of course, submitted this beet sugar to careful chemical examination at the time it was purchased and the chemical results gave nothing to warrant the expectation that fermentation would follow its use.

A Satisfactory Beet Sugar of Foreign Origin

We are closing with an interesting reminiscence of Prof. Lloyd that has a historical bearing on beet sugar.

In 1864, when I was serving my clerk apprenticeship with W. J. M. Gordin and Brother, 8th street and Central avenue, this city, that establishment was the chief prescription house of Cincinnati. One whole side of one large back room was taken up with what we called "rare remedies," in which would be found everything mentioned and used in prescription work or otherwise, that might be called for once a year and might be called for *never*. On one shelf in this department was a quart bottle labeled "Beet Sugar." That beet sugar was brought from France as a special item that had been mentioned in therapeutic works as being serviceable where cane sugar was not adapted. I remember several prescriptions being filled from that bottle of beet sugar, which replaced milk sugar as well as cane sugar, it having, as then explained, the following advantages:

First, it was more soluble in water than milk sugar and made triturates of quality equal those made with milk sugar.

Second, its molecular structure was scarcely crystalline, in fact, as I recall it as then made it was rather what I would now say approached the colloidal, and in my opinion was made by precipitation and not by crystallization.

I am wondering whether beet sugar made by the process apparently applied to that specimen might not have replaced milk sugar in Dover's powder, and in other directions where the more expensive material, milk sugar became established.

In this connection, you will recollect that at the date I mention, the diluent in Dover's powder was sulphate of potassium, which Dr. Charles Rice replaced in the Pharmacopeia of 1880, with milk sugar.

Use of Sugar Syrups in Medicinal Manufacture

Earlier in 1919 we circulated a questionnaire among the members of the Scientific Section to ascertain what experience they have had with sugar syrups containing cane sugar and also invert sugar. Every questionnaire that was returned contained a simple "No" in answer to the question "Have you had any experience in the use of sugar syrups in pharmaceutical manufacture or have you conducted any experimental work to ascertain their fitness for such use?" with the exception of two. Dr. Francis of Parke, Davis & Co., commented as follows:

Sugar Substitutes Too Crude

Looking into the use of cane syrups and various other substitutes for sugar, we have always found these to be of such crude quality and to contain such large proportions of substances that were easily fermentable, that we have not attempted to employ them and consequently have no practical experience in their use.

Another objection which has prevented us from employing these various substitutes for cane sugar is the fact that they differ so materially in their taste from a pure syrup as made from cane sugar.

We believe that the use of these substitutes, as recommended by the government and others, has been confined very largely to the bottlers of beverages.

Certain Syrups That Keep Well

Dr. Eldred of Eli Lilly & Co. wrote as follows:

"We have never used invert sugar in any of our products, but from laboratory experiments we believe that a syrup containing 32 per cent cane and 42 per cent invert sugar will keep about as well as cane sugar syrup. A syrup containing 30 per cent cane sugar and 40 per cent invert sugar also keeps very well. Syrups containing cane sugar and invert sugar seem to uniformly keep better than syrups containing cane sugar and glucose."

PART III

Memorials to Deceased Members

by

MR. FRANK L. H. NASON

RICHARD C. STOFER

On September 10, 1920, after an illness of several months, our kindly and beloved President, Mr. Richard C. Stofer, passed away at the Norwich Memorial Hospital, Norwich, New York. At the time of his decease, Mr. Stofer was serving his second term as President of our association and had served for fourteen years as President of the Norwich Pharmacal Company of Norwich, New York.

Mr. Stofer was born September 11, 1862, in Wilmington, Delaware, and received his education in Philadelphia. In 1882 he entered the employ of the Keasbey & Mattison Company, chemical manufacturers, of Ambler, Pennsylvania. Ten years later he went to Norwich, New York, to become chief chemist and superintendent of the Norwich Pharmacal Company. Later he was elected Vice-President, and in 1906 he was elected President of the Norwich Pharmacal Company, in which position he served until his death, with honor and distinction, not only to himself, but also to his company.

During his service of more than 28 years with the Norwich Pharmacal Company, the corporation, largely through his force, courage and sagacity, grew from modest proportions into its present high position in the pharmaceutical trade.

Prominent in local, civic and philanthropic movements, president or director of many organizations, active in church and Masonic circles, his influence was broadly exercised, always in the direction of stability and advancement. His membership and prominent position in the American Drug Manufacturers' Association, and in the Associated Industries of New York, made him a figure of national prominence. His efforts for many years were directed toward securing uniform and just legislation in state and nation for the drug trade, and toward the prevention of fraudulent practices.

Among his associates he was esteemed not only for his business judgment and professional skill, but for those human qualities which bring loyalty, enthusiasm and devotion.

In the business world he was recognized as a power and to all who knew him his integrity and fairness were an inspiration. The profession has lost a skillful and honored member. Those closely associated with him have lost a helpful, generous, kindly companion and the community has lost a genial and democratic friend.

He is survived by a widow, a daughter Miss Helen Stofer, and a son, Dr. M. Webster Stofer, Medical Director of the Norwich Pharmacal Company, to whom our heartfelt sympathy is extended in their bereavement.

"And ever near us, though unseen,
The dear immortal spirits tread;
For all the boundless universe
Is life—there are no dead."

FRANK G. RYAN

Frank G. Ryan, president of Parke, Davis & Company, died suddenly from pneumonia on the afternoon of April 20, after an illness lasting about three days. Funeral services were held at Christ Church in Detroit on April 22. The active pallbearers were selected from an intimate group of his associates in the Company, and comprised John M. Francis, E. M. Houghton, Harry B. Mason, E. R. Larned, Harry L. Russell, and Selby S. Coleman. There were about forty honorary pallbearers representing the Board of Directors of the house and other close friends.

Mr. Ryan was born in 1861 in Marcellus Falls, N. Y., and was educated in the public schools of Elmira. Beginning his business life as a drug clerk in the pharmacy of Brown & Dawson, Syracuse, N. Y., after some years' experience he entered the Philadelphia College of Pharmacy and was graduated therefrom in the class of 1882. Shortly thereafter he was appointed to a position on the college staff and served as a member of the faculty for fourteen years.

During the summer months, in order to use his leisure productively, he did sales and detail work for Parke, Davis & Company and finally, in June, 1900, he severed all other connections and joined the staff of that house in the capacity of chief pharmacist. Within three years thereafter he began passing through a remarkable series of promotions. He was first elected to membership on the Board of Directors; he was next made secretary of the corporation; he was then elevated to the vice-presidency; and in April, 1907, he became president of the Company and occupied this office until his death.

Mr. Ryan was pre-eminently a man who carved out his own career from the hard rock of opportunity. He rose from the rank of a drug clerk to a position of commanding influence in the pharmaceutical world. His career affords special encouragement for the ambitious drug clerk and also the traveling salesman. For many years he played an active and prominent part in the affairs of the American Pharmaceutical Association. Later on he became one of the founders of the American Drug Manufacturers' Association, and served as president of this organization during the first two years of its existence. His experience and counsel were always at the command of the Association and proved of greatest value. In the civic and industrial life of Detroit he was a leading figure, and from time to time was found on the personnel of important public committees. He was a member of the Country Club, the Yondotega Club, the Detroit Club, the

Detroit Boat Club, and the Detroit Athletic Club. Two of these organizations—the Detroit Club and the Country Club—he served in the capacity of president.

In business life he was an aggressive leader, but above all and beyond all he was a man of the highest and deepest sense of honor. Integrity, indeed, was his dominant characteristic. His common sense, judgment, insight and rare good humor were a source of great inspiration to all his friends and associates. His death is a severe blow to his innumerable friends in the drug trade and a very great loss to the corporation over whose destiny he presided for a period of thirteen years.

Mr. Ryan is survived by a daughter, Mrs. Chas. A. Dean, Jr., and a grandson, Chas. A. Dean 3rd. All our sympathy goes out to them for the loss of one so near and so beloved.

“There is no death! The leaves may fall,
And flowers fade and pass away;
They only wait, through wintry hours,
The coming of the May.”

H. C. MOORE

Since we last gathered in Convention, one of our members has gone to the Great Beyond, and we offer here today a most sincere tribute to his memory.

Mr. H. C. Moore, President of the Pittman, Moore Company, Indianapolis, died at his residence in that City October 6th, 1919, of Pernicious Malaria, after a short illness.

Mr. Moore was born in Selma, Delaware County, Indiana, in 1874, and spent his childhood years there. His parents, Lorinda and John L. Moore, were natives of the same County and his grand parents were among the pioneers of Indiana.

Mr. Moore began his business career in the wholesale grocery business conducted by his father in Indianapolis—later he became Purchasing Agent of the White Knob Cooper Company, McKay, Idaho. In 1905, he became Treasurer of the Pittman, Meyers Company of Indianapolis, who were operating at the time a small pharmaceutical business. In 1906, a new laboratory was built and in 1913, Mr. Moore was elected President of the Company, and the name changed to the Pittman-Moore Company. In the same year, elaborate biological laboratories were established at Zionville, Indiana, near Indianapolis.

Mr. Moore was a Scottish Rite Mason and a Shriner, a member of the Columbia Club, Indianapolis, Chemists Club of New York, the American Veterinary Association, The American Association of Pharmaceutical Chemists.

Mr. Moore had many friends, all of whom were charmed by his genial personality. He is survived by his wife, mother and sister, and to these bereaved ones, we extend our heartfelt sympathy.

APPENDIX

CONSTITUTION

Preamble

WHEREAS, For mutual advancement and protection there is a national organization of every branch of the drug trade of America excepting that engaged in the manufacture and production of pharmaceuticals, chemicals, biological and other products ultimately employed by the medical and allied professions for the cure, mitigation and prevention of disease, than which no department of the drug trade is of higher or more vital importance to the public; and

WHEREAS, It is desirable, in the manufacture and marketing of such products, to maintain the high standards generally observed by manufacturers individually during many years past; to encourage and promote still greater achievement; to insure to individual members the just and proper reward of initiative, discovery and invention; to prevent fraudulent practices in the drug trade; to encourage the lawful enforcement of sound drug legislation, and effect official observation of the fundamental law of the land; to prevent the subversion of law to factional purposes; to amicably adjust differences; to advance uniform and just drug legislation; and in other lawful ways to promote the welfare of and fraternity among those engaged in the manufacture of therapeutic agents for the use of the medical and allied professions.

THEREFORE, We do form ourselves into an association and agree to be governed by the following constitution and by-laws:

Article I—Name

The name of this organization shall be The American Drug Manufacturers' Association.

Article II—Membership

Any persons, partnership, or corporation in the United States of America or any of its territories or insular possessions primarily engaged in the manufacture of pharmaceuticals, chemicals, biological, or allied products for the cure, alleviation, mitigation or prevention of disease, may, on recommendation of the Committee on Membership and election by the Association, become an active member of this Association by subscribing to the Constitution and By-Laws and the payment of such part of the annual dues of \$300 as shall cover pro rata that portion of the fiscal year during which he is actually a member.

Election of members shall be by ballot.

In addition to the regular dues special assessments may be levied for the purposes of the Association upon a vote of two-thirds of the members of the organization at any regular meeting or at any special meeting called for such purpose.

Article III—Meetings

The annual meeting of the Association shall be held at such place and on such dates as shall be named in a resolution of the Association adopted at the last preceding annual meeting.

Special meetings may be called at any time by the President, upon the written request of five members; a notice of such meeting, specifying the object

for which it is called, shall be mailed to every member of the Association not less than ten days prior to the date on which the meeting is to be held.

At all meetings of the Association fifteen members shall constitute a quorum for the transaction of business. Any member may be present at any meeting by an agent provided with written credentials from the member he represents, and his vote shall be binding on such member; otherwise voting by proxy shall not be permitted.

Article IV—Officers

The officers of this Association shall be a President, three Vice-Presidents, Secretary, Treasurer, and an Executive Committee of nine, to be composed of the President, Vice-Presidents, Secretary, Treasurer, Chairman of the Committee on Legislation, and two members who shall hold their offices for one year or until their successors are duly chosen. Such officers, except the Chairman of the Committee on Legislation, shall be elected by ballot at the regular annual meeting; each member shall be entitled to one vote, and the candidate who shall receive a majority of the votes shall be declared duly elected.

The President shall preside at all meetings, appoint all committees, the appointment of which is not provided for either by by-law or resolution creating the committee, and call special meetings on the written request of five members.

In the absence of the President, a Vice-President shall act.

The Secretary shall keep a record of all meetings, and conduct and preserve all correspondence of the Association. And he shall also act as Secretary of each Committee of the Association and shall also assist the Secretary of the Sections created under Article VIII in the same manner as he assists the Committees.

It shall be his function to conserve and to suggest methods of utilizing the energies of the Committees with the greatest degree of effectiveness and with a minimum demand on the time of their members; also to serve as a medium through which the activities of the Association can be correlated. He shall therefore keep a record of the work of each committee, issue calls to its meetings, and otherwise keep its committeemen informed of pertinent matters; issue bulletins under the direction of the Committee to the members of the Association relative to matters under the Committee's jurisdiction; collect and compile data to further the Committee's work; supply its committeemen with stationery and form and assist in the work of each Committee in all other ways as the Committee may direct.

It shall be the duty of all officers and of all committeemen of the Association to send him copies of all letters which they may write in their official capacities in order that the files of the Association may show a complete record of the business of the organization and in order that its different activities may be kept in harmony.

It shall be the duty of every Chairman of a Committee or Section to submit to him the annual report which it is customary to read at the annual meeting of the Association for consideration by the Executive Committee at its meeting immediately before the annual meeting of the Association. This provision is

made in order that the Executive Committee may recommend action on matters contained in the report.

The Treasurer shall receive all funds and disburse the same under the direction of the Executive Committee or by vote of the Association, and report at each annual meeting. His account shall be audited by a special committee of three to be appointed annually by the President.

The Executive Committee shall regulate, control and dispose of any property belonging to the Association, and transact such other business as may be referred to it for action by vote of the members of the Association; and shall also fill all vacancies that may occur in elective offices between the annual meetings.

Article V—Committees

There shall be the following standing committees charged with the duties indicated by their titles and such duties as may be imposed upon them by the Constitution, By-Laws, or by Resolution of the Association; which committees shall be appointed annually by the incoming President:

A Committee on Membership to be composed of three members.

A Committee on Legislation to be composed of five members.

A Committee on Memorials to Deceased Members to be composed of three members.

A Committee on Standards and Deterioration to be composed of five members.

A Tariff Committee to be composed of five members.

A Committee on Employment Problems to be composed of five members.

A Committee on Transportation to be composed of five members.

Article VI—Amendments

Any amendment or addition to this Constitution may be made at any regular meeting by a vote of two-thirds of the members present.

Article VII—Expulsion

Any member may be expelled or suspended from the Association upon the recommendation of the Executive Committee, confirmed by a two-thirds vote of the membership present at any regular meeting, or at any special meeting called to consider such recommendation. Such vote shall be by ballot.

Article VIII—Sections

Whenever it may deem advisable, the Association may provide a by-law for a section to facilitate the work of the Association as it pertains to a special phase of its activities. Each section when so provided for shall select a chairman and secretary, and may hold such sessions during each year as the members of the Section or the Association may deem advisable. One regular meeting shall be had during the annual meeting of the Association. The powers and duties of the Section shall be provided for in the by-law creating it.

BY-LAWS

I—RESTRAINT OF TRADE

No member shall be required or expected to be influenced by his membership in this Association in any way in determining to whom he shall sell his products, or at what prices, it absolutely not being the purpose of this organization to create any monopoly or effect any contract, agreement or understanding in restraint of trade.

II—BIOLOGICAL SECTION

In accordance with Article VIII of its Constitution, the Association hereby creates and provides for the regulation of a Section to be known as the Biological Section to assist as a department of its organization in the fulfillment of its aims and purposes.

ARTICLE A—MEMBERSHIP

1. The members of the Association who devote all or any of their facilities to the production of biological products shall automatically and without further formality become members of the Section; and no producer who is not a member of the Association shall be a member of the Section.

2. The members of the Executive Committee shall be members ex-officio of the Section and shall have the privilege of the floor at its meetings, but not the right to vote. All general communications addressed to the members of the Section shall be sent them also.

3. Membership in the Section shall be terminated only by resignation or expulsion from the Association.

ARTICLE B—DUES AND ASSESSMENTS

1. There shall be no extra fee charged for membership in the Section. But upon first receiving the authorization of the Executive Committee, the Section may levy assessments on its members, provided such assessment shall be approved by a two-thirds vote of its entire membership taken by secret ballot at any regular or special meeting of the Section.

ARTICLE C—OFFICERS

1. At the regular annual meeting hereinafter provided for, the Section shall elect by ballot a Chairman and a Section Secretary. Those parties shall be deemed elected who shall receive a majority vote of the members present. They shall hold office for one year or until their successors are duly elected.

2. The Chairman shall preside at all meetings of the Section and shall appoint all committees of the Section whose appointment is not otherwise expressly provided for by act of the Section, the Executive Committee or the Association. He shall call special meetings of the Section at his discretion, or upon receiving written instructions from the Executive Committee, the Association or five members of the Section.

3. The Secretary of the Section shall keep its minutes. He may also conduct in the name of the Section such correspondence pertaining to the business of the Section as is necessary and consistent with the Constitution and By-Laws

of the Association. He shall also furnish a report on behalf of the Section for consideration at the meetings of the Executive Committee.

4. The Secretary of the Association shall bear the same relationship to the Biological Section and its committees as he does to the committees of the Association. Notice of all action of the Section and copies of the minutes of all its meetings and of all letters written by committeemen or officers of the Section shall be furnished him for preservation in the files of the Association. He shall circulate all general letters of the Section, conduct all general campaigns under the directions of the Section Secretary and shall send out all official notices of meetings of the Section or its committees. He shall also keep officials of the Section supplied with stationery and forms.

ARTICLE D—MEETINGS

1. There shall be one regular meeting of the Section annually which shall be held at the same place and within the course of the two or three days immediately preceding the regular annual meeting of the Association.

2. The Chairman of the Section shall call special meetings of the Section at his discretion, or upon receiving written instruction from the Executive Committee, the Association or five members of the Section. A notice of such meeting, specifying the time and place of meeting and the object thereof shall be mailed each member of the Section not less than ten days prior to the date on which the meeting is to be held.

3. The rules of representation at all meetings of the Section shall be the same as are constitutionally provided for representation at meetings of the Association, and a majority of the members of the Section shall constitute a quorum for the transaction of business.

ARTICLE E—POWERS AND DUTIES OF THE SECTION

1. The Section is hereby empowered to promote the welfare of its members in any of the directions enumerated in the preamble of the Constitution of the Association and to adopt rules and create Committees to facilitate its work, subject to these provisions.

The acts of the Association as a body and its Executive Committee shall take precedence over the acts of the Section.

The approval of the Executive Committee or the Association shall be first obtained before any action is taken that involves expenses of any substantial amount to be paid out of the funds of the Association, or that is reasonably liable to result in pecuniary charges for which the Association will be responsible. In all other cases, the Section may act without first obtaining the consent of the Executive Committee or the Association; such action, however, shall be subject to the approval of the Executive Committee or the Association if either sees fit to exercise this prerogative.

All actions of the Biological Section shall be invalid unless consistent with the Constitution and By-Laws of the Association.

The Section shall entertain no discussions with reference to prices or to whom a member shall sell his product; it being the policy of the Association to keep itself above the slightest suspicion of any desire to create a monopoly or effect any contract, agreement, or understanding in restraint of trade.

The Biological Section, through its Chairman or Secretary, shall make a report at each annual meeting of the Association of the progress made in biological research, and of conditions effecting the welfare of members of the Section and the interests they particularly serve; also a report of any other matters of common and scientific interest the section may deem advisable; together with recommendations as to what the Association may do as a whole to promote the production of biological products and the interests of those engaged therein.

BY-LAW III—SCIENTIFIC SECTION

In accordance with Article VIII of its Constitution the Association hereby creates and provides for the regulation of a Section to be known as the Scientific Section, which shall endeavor by study and research to advance the progress of manufacturing chemistry and pharmacy in ways that will at the same time benefit mankind.

ARTICLE A—MEMBERSHIP

1. The membership of the Scientific Section shall consist of such of the leading technical or scientific research men of each firm in the membership as the firm in question may desire to appoint, but no firm shall have more than one vote on any matter before the Section for decision.

2. Each of a firm's representatives in the Scientific Section shall continue to hold membership in the Section indefinitely subject (a) to his removal at any time at the will of his firm, (b) to the automatic termination of his membership by the resignation or expulsion of his firm from membership in the Association or the severance of his connection with his firm; (c) to his expulsion from the Section by a vote of two-thirds of its entire membership for conduct unbecoming a member of the Section.

3. Other parties connected with member firms shall have the privileges of the floor at its meeting, but not the right to vote.

ARTICLE B—DUES AND ASSESSMENTS

1. There shall be no extra fee charged for membership in the Scientific Section and no dues or assessments. The Section shall be financed instead of from the funds of the Association.

ARTICLE C—OFFICERS

1. The officers of the Section shall be a Chairman, a Board of Control, and a Secretary. The Section Chairman shall be appointed by the President of the Association with the approval of the Executive Committee. The Board of Control shall be appointed by the Section Chairman. The Secretary of the Association shall be Secretary of the Section.

2. The Chairman shall preside at all meetings of the Section and shall appoint all committees of the Section whose appointment is not otherwise expressly provided for by act of the Section, the Executive Committee or the Association. He shall call special meetings of the Section, as provided in Article D, Section 2. He shall also furnish a report on behalf of the Section for consideration at the meetings of the Association.

3. The Secretary of the Section shall keep its minutes. He may also conduct in the name of the Section such correspondence pertaining to the business of the Section as is necessary and consistent with the Constitution and By-Laws of the Association.

4. The Secretary of the Association shall bear the same relationship to the Scientific Section and its committees as he does to the committees of the Association. Notice of all action of the Section and copies of the minutes of all its meetings and of all letters written by committeemen or officers of the Section shall be furnished him for preservation in the files of the Association. He shall circulate all general letters of the Section and shall send out all official notices of meetings of the Section or its committees. He shall also keep officials of the Section supplied with stationery and forms.

5. The Board of Control shall consist of the Chairman and the Secretary of the Section, who shall serve as Chairman and Secretary of the Board, and of one representative of each of the following groups of the membership:

- (a) Crude drug millers.
- (b) Essential oil houses.
- (c) Medicinal chemical houses.
- (d) Pharmaceutical manufacturers.
- (e) Surgical dressing manufacturers.

6. The Board of Control shall serve as the governing body of the Scientific Section in the interim between meetings and is hereby empowered to make such changes in the program of work or in the working organization of the Section as it may deem advisable. It is also empowered to make recommendations to the Executive Committee of the Association with respect to what findings of the Section or any of its constituent parts should be acted upon by the Association or published in the name of the Association.

ARTICLE D—MEETINGS

1. There shall be one regular meeting of the Section annually which shall be held at the same place and within the course of the two or three days immediately preceding the regular annual meeting of the Association.

2. The Chairman of the Section shall call special meetings of the Section at his discretion, or upon request of a majority of the Board of Control, provided their request is approved by the executive committee of the Association. A notice of such meeting, specifying the time and place of meeting and the object thereof shall be mailed each member of the Section not less than ten days prior to the date on which the meeting is to be held.

3. The rules of representation at all meetings of the Section shall be the same as are constitutionally provided for representation at meetings of the Association, ten voting members of the Section shall constitute a quorum for the transaction of business.

ARTICLE E—POWERS AND DUTIES OF THE SECTION

1. The Scientific Section is hereby empowered to provide within itself such an organization as it deems necessary and proper to accomplish the purposes set forth in the preamble of this by-law.

2. The Section is likewise empowered to draft such rules and regulations for conduct of its work as it sees fit, providing only that they be consistent with the Constitution and By-Laws of the Association.

3. The approval of the Executive Committee or the Association shall be first obtained before any action is taken that involves expenditures of more than \$25, to be paid out of the funds of the Association, or that is reasonably liable to result in pecuniary charges for which the Association will be responsible.

4. No recommendations shall be made by the Section to outside persons or bodies and none of its conclusions or proceedings shall be published without first obtaining the consent of the Executive Committee or the Association.

REGULATIONS OF TRADE MARK BUREAU

WHEREAS, It is the purpose of this Association, as set forth in the preamble of its Constitution, to amicably adjust differences between its members, and

WHEREAS, There is a large number of trade-names not eligible to Government registration or which, for some reason, a member does not wish to so register but the priority of right to which fellow-members wish to respect; therefore be it

Resolved, That this Association create and maintain a Bureau for the registration of trade-names in accordance with the following provisions:

A. Registration

I. This Bureau is intended primarily for the registration of those titles not eligible to United States Registration or for which a member does not wish to apply for such registration but the registration of Government protected trade-names shall also be permitted. The only names that shall not be eligible to registration shall be the ordinary pharmaceutical, chemical, and biological titles in common use.

II. Application for registration shall be made on a blank to be furnished by the Secretary, who shall have supervision over the Bureau. This blank shall require the applicant to make a signed statement giving the following data:

1. The trade-name to be registered.
2. As brief a designation of the product or products to which it is applied as will serve to identify the same.
3. The United States Registry Number, if the same is so registered.
4. The date on which the name was first used in actual trade; provided that, if the name has not been used in actual trade, registration may be made subject to the condition that, when finally used, the date of first use shall be reported to the Secretary to confirm the registration and subject to the further condition that, if the name be not used

within twelve months of the date of registration, application for an extension of time must be made to the Executive Committee, giving the additional time required to place the product on the market.

III. The privileges of registration shall be extended to members only.

IV. If no protest is received from a member thirty days after the date of the notice of application hereinafter provided for, the Secretary's office shall make out the permanent record provided for in Section E, Article I, providing the Secretary has not seen fit to exclude the trade-name in question from registration on the ground that it is such a title in common use as is declared ineligible to registration in A-1. The official act of registration shall be consummated by the Secretary's signing the permanent record herein mentioned and the registration shall date back to the date of the application. In all cases in which the Secretary shall refuse registration under the exception created in A-1, he shall immediately notify the applicant of his decision in writing and shall state the reasons therefor in detail.

V. All trade-names in use prior to the formal opening of this Bureau of Trade-name Registration shall be registered immediately on receipt of application, subject only to the exceptions made in A-1.

B. Publication of Applications

I. At frequent intervals, to be left to his discretion, the Secretary shall publish a list of the applications received since the previous publication of applications, and this shall be distributed among the members. It shall state:

1. The trade-names for which registry is asked.
2. The product or line covered by each.
3. The date when first use is claimed by the applicants.
4. The name and address of each applicant.

It shall also notify the members that the application for registration will be granted if a protest is not received before the end of the thirtieth day following the date of publication.

C. Protests and Action Thereon

I. Any member shall have the right to protest the granting of registration to a trade-name, provided he acts within thirty days of the date of the publication of the application. In the event of any duplication in trade-names registered en bloc, any adjustment shall be between the members interested without the Association being a party thereto.

II. The right of a member to protest may be based either on the ground that the objectionable trade-name infringes on one to which he has prior claim or that it comes within the excepted class in A-1.

III. The decision of the Secretary on protests shall be subject to review by the Executive Committee, to whom appeal may be made and whose decision shall be final.

D. Publication of Registrations

I. At intervals, to be left to his discretion, the Secretary shall publish a list of all the trade-names to which registration in the Association's Bureau has been granted. These lists shall give the following information:

1. The trade-name.
2. The product or products covered by it.
3. The date of first use in actual trade.
4. The date of registration by the Bureau of the Association.

It shall likewise be cross-indexed according to the system that the Secretary shall provide.

II. A copy of each issue of this list shall be sent to all members of the Association.

E. Records

I. The Secretary shall keep a permanent card record of all trade-names registered, using a separate card for each trade-name. This card shall contain a record of the data specified under Section A, Article 1; and spaces for the date of formal registration and the signature of the Secretary. Space shall also be provided for a record of all proceedings on appeals to the Executive Committee.

II. All forms and filing systems shall be subject to the approval of the Executive Committee.

F. Rules and Regulations

I. The Executive Committee is hereby authorized to promulgate any rules and regulations that may be necessary to carry out the provisions of this resolution.



MEMBERS OF THE AMERICAN DRUG MANUFACTURERS ASSOCIATION

CORRECTED TO FEB. 5, 1931

Abbott Laboratories	Chicago, Ill.
Allaire, Woodward & Co.	Peoria, Ill.
*Anderson, P. E., & Co.	New York City, N. Y.
Armour & Company	Chicago, Ill.
Barrett Company, The	New York City
Bauer & Black	Chicago, Ill.
Bristol-Myers Company	Brooklyn, N. Y.
Bush & Company, W. J.	New York City
Chiris, Antoine, Company	New York City
Citro Chemical Company	Maywood, N. J.
Cutter Laboratory, The	Berkeley, Cal.
Davies, Rose & Company	Boston, Mass.
Digestive Ferments Company	Detroit, Mich.
Dow Chemical Company, The	Midland, Mich.
Fritzsche Brothers	New York City
Hance Brothers & White, Inc.	Philadelphia, Pa.
Heyden Chemical Works	New York City
Hynson, Westcott & Dunning	Baltimore, Md.
Johnson & Johnson	New Brunswick, N. J.
Lilly, Eli, & Company	Indianapolis, Ind.
Lloyd Brothers	Cincinnati, Ohio
Mallinckrodt Chemical Works	St. Louis, Mo.
Maltbie Chemical Company	Newark, N. J.
Maywood Chemical Company	Maywood, N. J.
Merck & Company	Rahway, N. J.
Merrell, The Wm. S., Company	Cincinnati, Ohio
Monsanto Chemical Works	St. Louis, Mo.
Mulford, H. K., Company	Philadelphia, Pa.
National Drug Company	Philadelphia, Pa.
Nelson, Baker & Company	Detroit, Mich.
New York Quinine & Chemical Works	New York City
Norwich Pharmacal Company	Norwich, N. Y.
Parke, Davis & Company	Detroit, Mich.
Patch, The E. L., Company	Stoneham Sta., Boston, Mass.
Penick & Company, S. B.	New York City
Pfizer, Chas., & Company	New York City
Pitman-Moore Company	Indianapolis, Ind.
Powers-Weightman-Rosengarten Company	Philadelphia, Pa.
Roessler & Hasslacher Chemical Company	New York City
Seabury & Johnson	New York City
Sharp & Dohme	Baltimore, Md.
Sherman, Dr. George H.	Detroit, Mich.
Squibb, E. R., & Sons	New York City

*Elected to membership at Ninth Annual Meeting.

Standard Chemical Company.....	Des Moines, Ia.
Stearns, Frederick, & Co.....	Detroit, Mich.
Tailby-Nason Company	Boston, Mass.
Thayer, Henry, & Co., Inc.....	Cambridge, Mass.
*Thompson, F. A., & Co.....	Detroit, Mich.
Tilden Company, The.....	New Lebanon, N. Y.
Todd, A. M., Company.....	Kalamazoo, Mich.
Upjohn Company, The.....	Kalamazoo, Mich.
Wampole, Henry K., & Co., Inc.....	Philadelphia, Pa.
Warner, Wm. R., & Co.....	New York City
Zemmer Company, The.....	Pittsburgh, Pa.

*Elected to membership at Ninth Annual Meeting.

OFFICERS AND COMMITTEES

CORRECTED TO NOV. 17, 1930

EXECUTIVE COMMITTEE:

W. A. Sailer, President, Sharp & Dohme, Baltimore, Md.
Willard Ohliger, Vice-President, Frederick Stearns & Co., Detroit.
Dr. Fred B. Kilmer, Vice-President, Johnson & Johnson, New Brunswick,
N. J.
Burton T. Bush, Vice-President, Antoine Chiris, New York City.
Franklin Black, Treasurer, Chas. Pfizer & Co., New York City.
W. J. Woodruff, Secretary, Albee Bldg., Washington, D. C.
James E. Bartlett, Parke, Davis & Co., Detroit, Mich.
Chas. M. Woodruff, Legal Counsel, Parke, Davis & Co., Detroit, Mich.
F. L. McCartney, Monsanto Chemical Works, St. Louis, Mo.

COMMITTEE ON ALCOHOLIC MEDICINALS:

C. M. Woodruff, Chairman, Parke, Davis & Co., Detroit, Mich.
C. J. Lynn, Eli Lilly & Co., Indianapolis, Ind.
Chas. G. Merrell, Wm. S. Merrell Chemical Co., Cincinnati, O.
W. A. Sailer, Sharp & Dohme, Baltimore, Md.
J. Fred Windolph, Norwich Pharmacal Co., Norwich, N. Y.

COUNCILLOR OF CHAMBER OF COMMERCE OF U. S. A.:

Chas. J. Lynn, Eli Lilly & Co., Indianapolis, Ind.

Alternate:

John F. Queeny, Monsanto Chemical Works, St. Louis, Mo.

COMMITTEE ON COMMERCIAL TRAVELERS:

R. D. Keim, Chairman, E. R. Squibb & Sons, New York City.
W. A. Caperton, Eli Lilly & Co., Indianapolis, Ind.
Edgar W. Emery, E. L. Patch Co., Stoneham Sta., Boston, Mass.
E. J. Barber, The Barrett Company, New York City.
J. R. Worden, Frederick Stearns & Co., Detroit, Mich.

COMMITTEE ON CREDIT AND COLLECTIONS:

N. K. Conderman, Chairman, Hance Bros. & White, Inc., Philadelphia, Pa.
G. D. Ellyson, Standard Chemical Co., Des Moines, Iowa.
C. Blair Leighton, W. J. Bush & Company, New York City.
A. W. Haas, Norwich Pharmacal Company, New York City.
F. S. Stearns, Frederick Stearns & Company, Detroit, Mich.

COMMITTEE ON EMPLOYMENT PROBLEMS:

S. S. Coleman, Chairman, Parke, Davis & Co., Detroit, Mich.
H. W. Wilson, Frederick Stearns & Co., Detroit, Mich.
J. M. Allen, Bristol-Myers Co., Brooklyn, N. Y.
F. N. Lowry, Dow Chemical Company, Midland, Mich.
R. W. Johnson, Johnson & Johnson, New Brunswick, N. J.
C. N. Angst, Pitman & Moore, Indianapolis, Ind.
E. Kallenbach, Wm. R. Warner & Co., New York City.

COMMITTEE ON FOREIGN TRADE:

Oscar W. Smith, Chairman, Parke, Davis & Co., New York City.
Eugene Ross, Johnson & Johnson, New Brunswick, N. J.
A. D. Guerra, Sharp & Dohme, Baltimore, Md.
P. J. Donohoe, E. R. Squibb & Sons, New York City.
J. W. Greene, Wm. S. Merrell Chemical Co., New York City.

COMMITTEE ON INSURANCE PROBLEMS:

N. H. Noyes, Chairman, Eli Lilly & Co., Indianapolis, Ind.
G. D. Merner, Wm. R. Warner & Co., New York City.
Thurston Merrell, Wm. S. Merrell Chemical Co., Cincinnati, O.
A. J. Todd, A. M. Todd Company, Kalamazoo, Mich.
C. C. Doll, Zemmer Company, Pittsburgh, Pa.
G. A. Anderson, Chas. Pfizer & Co., New York City.

COMMITTEE ON LEGISLATION:

C. M. Woodruff, Chairman, Parke, Davis & Co., Detroit, Mich.
J. C. Roberts, Sharp & Dohme, Baltimore, Md.
J. Fred Windolph, Norwich Pharmacal Co., Norwich, N. Y.
John F. Queeny, Monsanto Chemical Works, St. Louis, Mo.
George C. Pratt, National Drug Co., Philadelphia, Pa.

COMMITTEE ON MEMBERSHIP:

Henry C. Lovis, Chairman, Seabury & Johnson, New York City.
Chas. J. Lynn, Eli Lilly & Co., Indianapolis, Ind.
John F. Queeny, Monsanto Chemical Works, St. Louis, Mo.
Adolph Rosengarten, Powers-Weightman-Rosengarten Co., Philadelphia, Pa.
Dr. John F. Anderson, E. R. Squibb & Sons, New Brunswick, N. J.
S. B. Penick, S. B. Penick & Co., New York City.

COMMITTEE ON MEMORIALS TO DECEASED MEMBERS:

F. L. H. Nason, Tailby Nason Company, Boston, Mass.

DELEGATES TO NATIONAL DRUG TRADE CONFERENCE:

Chas. J. Lynn, Chairman, Eli Lilly & Co., Indianapolis, Ind.
W. A. Sailer, Sharp & Dohme, Baltimore, Md.
W. J. Woodruff, Secretary, American Drug Mfrs.' Assn., Washington, D. C.

Alternates:

J. E. Bartlett, Parke, Davis & Co., Detroit, Mich.
Willard Ohliger, Frederick Stearns & Co., Detroit, Mich.
A. G. Rosengarten, Powers-Weightman-Rosengarten Co., Philadelphia, Pa.

OFFICIAL REPORTER ON PHARMACY, CHEMISTRY AND BIOLOGY:

H. A. B. Dunning, Hynson, Westcott & Dunning, Baltimore, Md.

COMMITTEE ON PATENTS AND TRADE-MARKS:

Chas. G. Merrell, Chairman, Wm. S. Merrell Co., Cincinnati, O.
Dr. F. B. Kilmer, Johnson & Johnson, New Brunswick, N. J.
Dr. J. M. Francis, Parke, Davis & Co., Detroit, Mich.
C. J. Lynn, Eli Lilly & Co., Indianapolis, Ind.
Dr. W. C. Abbott, Abbott Laboratories, Chicago, Ill.

COMMITTEE ON SOCIAL INSURANCE:

Eugene Hardin, Chairman, Tailby-Nason Co., Boston, Mass.
Harry B. Mason, Parke, Davis & Co., Detroit, Mich.
F. M. Bell, Armour & Co., Chicago, Ill.
H. A. B. Dunning, Hynson, Westcott & Dunning, Baltimore, Md.
J. H. Foy, Maltbie Chemical Co., Newark, N. J.

COMMITTEE ON TARIFF:

H. H. Dow, Chairman, Dow Chemical Co., Midland, Mich.
Frederick Rosengarten, Powers-Weightman-Rosengarten, Philadelphia, Pa.
F. E. Watermeyer, Fritzsche Brothers, New York City.
G. A. Pfeiffer, Wm. R. Warner & Co., Inc., New York City.
O. L. Beibinger, Mallinckrodt Chemical Works, St. Louis, Mo.
James T. Pardee, Dow Chemical Co., Midland, Mich.
H. C. Lovis, Seabury & Johnson, New York City.
H. H. Whyte, H. K. Mulford Co., Philadelphia, Pa.

COMMITTEE ON TRANSPORTATION:

Wm. J. Buchanan, Chairman, Frederick Stearns & Co., Detroit.
J. W. Korn, Eli Lilly & Co., Indianapolis, Ind.
Chas. W. Lytle, Powers-Weightman-Rosengarten Co., Philadelphia.
W. G. Norvell, Parke, Davis & Co., Detroit, Mich.
J. A. Elsesser, Allaire-Woodward Company, Peoria, Ill.

U. S. P. SYNOPSIS—COMMITTEE ON PUBLICATION:

John Uri Lloyd, Chairman, Lloyd Bros., Cincinnati, Ohio.
Dr. J. M. Francis, Parke, Davis & Co., Detroit, Mich.
Caswell A. Mayo, Wm. S. Merrell Co., Cincinnati, Ohio.
Harry B. Mason, Parke, Davis & Co., Detroit, Mich.
Dr. A. R. L. Dohme, Sharp & Dohme, Baltimore, Md.
W. J. Woodruff, Secretary, Albee Bldg., Washington, D. C.

COMMITTEE ON REVISION OF YEARBOOK:

Willard Ohliger, Frederick Stearns & Co., Detroit, Mich.
C. M. Woodruff, Parke, Davis & Co., Detroit, Mich.
W. J. Woodruff, Secretary, Albee Bldg., Washington, D. C.
Harry B. Mason, Parke, Davis & Co., Detroit, Mich.

*The late Mr. R. C. Stofer was elected President at the Ninth Annual Meeting but was succeeded on his untimely death by Mr. Sailer, who was duly elected by the Executive Committee to complete Mr. Stofer's unexpired term.

***SUBCOMMITTEES OF SCIENTIFIC SECTION**

CORRECTED TO FEB. 5, 1931

BOARD OF CONTROL: Francis, W. J. Woodruff, Penick, Richmond, DuBois, Snyder, Kilmer.

1. **ACETYL SALICYLIC ACID:** DuBois, Schaefer, Ritch, Fiske, Putnam, Hoskins, Heyl, Fischelis.
2. **ACONITE:** Dohme, Francis, Snyder, Lyons, Heyl, Walters.
3. **CANNABIS:** Proctor, Houghton, Fiske, Blome, Pittenger, Hamilton, Walters.
4. **CHLOROFORM AND ETHER:** Francis, Parker, Putnam, Austin.
5. **CONTROL ASSAYS:** Francis, Snyder, Rosin, Dohme, Fenger, Kilmer, Patch, Blome, Hynard.
6. **CRUDE AND MILLED DRUGS:** Penick, Todd, Francis, White, Klock, Anderson.
7. **DIGITALIS:** Pittenger, Snyder, Houghton, Fiske, Hamilton, Walters.
8. **DILUENTS, EXCIPIENTS:** Proctor, Francis, Dohme, Blome, Hoskins, Davies.
9. **DRUG EXTRACTS:** Snyder, Roberts, Francis, Bibbins, Patch, Blome, Berg.
10. **ESSENTIAL OILS:** Richmond, Swinton, Todd, Putnam, Leonhardt, Austin.
11. **LABORATORY MANAGEMENT:** Kilmer, Dunning, Ritch, Richmond, Pratt, Mallett, Davies, Fischelis.
12. **MALEFERN:** Dohme, White, Proctor, Burdick.
13. **MISC. ALKALOID AND DRUG STANDARDS:** Dohme, White, Kilmer, Ulen, Murray, St. John.
14. **MISC. CHEMICAL TESTS AND STANDARDS:** Rosin, Kilmer, Schaefer, Lyons, Murray, Parker, Fischelis.
15. **NITROGLYCERIN:** Francis, Dohme, Heyl, Burdick, Hoskins.
16. **PEPSIN AND PANCREATIN:** Fenger, Graber, Francis, Blome, Klein.
17. **PITUITARY EXTRACTS:** Houghton, Heyl, Pittenger, Fenger, Graber, Hamilton.
18. **SURGICAL DRESSINGS AND PLASTERS:** Kilmer, Williams, Hynard.
19. **WEIGHTS AND MEASURES:** Snyder, Proctor, Heyl, Blome, Kilmer.

*The full name and address of any member of a Subcommittee will be found on the list of "Members of the Scientific Section." The name of the Chairman is given first in each instance.

SCIENTIFIC SECTION PERSONNEL

CORRECTED TO FEB. 5, 1921

Anderson, P. E., P. E. Anderson Company, New York City.
Austin, F. J., Wm. H. Warner & Co., New York City.

Bebie, Dr. Jules, Monsanto Chemical Co., St. Louis.
Berg, F. F., E. R. Squibb & Sons, New York City.
Bibbins, F. E., Eli Lilly & Co., Indianapolis, Ind.
Blome, W. H., Frederick Stearns & Co., Detroit, Mich.
Burdick, Dr. A. S., Abbott Laboratories, Chicago, Ill.

Davies, W. W., Davies, Rose & Co., Boston, Mass.
Dill, C., Roessler & Hasslacher Co., New York City.
Dohme, Dr. A. R. L., Sharp & Dohme, Baltimore, Md.
DuBois, Gaston, Monsanto Chemical Works, St. Louis, Mo.
Dunning, H. A. B., Hynson, Westcott & Dunning, Baltimore, Md.

Fenger, Dr. Frederick, Armour & Co., Chicago, Ill.
Fischelis, R. P., Heyden Chemical Company, New York City.
Fiske, Dr. F. B., Pitman-Moore Company, Indianapolis, Ind.
Francis, Dr. J. M., Parke, Davis & Co., Detroit, Mich.

Grabber, H. T., Digestive Ferments Company, Detroit, Mich.

Hamilton, H. C., Parke, Davis & Co., Detroit, Mich.
Heyl, Dr. F. W., The Upjohn Company, Kalamazoo, Mich.
Hoskins, J. D., The Zemmer Company, Pittsburgh, Pa.
Houghton, Dr. E. M., Parke, Davis & Co., Detroit, Mich.
Hynard, E. R., Seabury & Johnson, New York City.

Kilmer, Dr. F. B., Johnson & Johnson, New Brunswick, N. J.

Leonhardt, F. H., Fritzsche Bros., New York City.
Lloyd, Prof. John Uri, Lloyd Brothers, Cincinnati, Ohio.
Lyons, Dr. F. B., Nelson, Baker & Co., Detroit, Mich.

Mallett, F. A., The Standard Chemical Company, Des Moines, Iowa.
Murray, B. L., Merck & Co., Rahway, N. J.

Patch, E. L., E. L. Patch Company, Stoneham Sta., Boston, Mass.
Parker, Dr. Wm. H., Chas. Pfizer & Co., New York City.
Penick, S. B., S. B. Penick & Co., New York City.
Pittenger, Dr. P. S., H. K. Mulford Company, Philadelphia, Pa.
Pratt, Geo. C., The National Drug Company, Philadelphia, Pa.
Proctor, R. W., Wm. S. Merrell Company, Cincinnati, Ohio.
Putnam, M. E., The Dow Chemical Company, Midland, Mich.

Richmond, Dr. G. F., Antoine Chiris Company, Delawanna, N. J.
Ritch, A. L., E. R. Squibb & Sons, New York City.
Roberts, J. C., Sharp & Dohme, Baltimore, Md.
Rosin, Joseph, Powers-Weightman-Rosengarten Company, Philadelphia, Pa.

Schaefer, Dr. Hugo, N. Y. Quinine & Chemical Co., New York City.
Snyder, J. P., Norwich Pharmacal Company, Norwich, N. Y.
St. John, B. H., Wm. H. Warner Company, St. Louis, Mo.
Swinton, R. S., W. J. Bush & Co., Linden, N. J.

Tailby, J. Allen, Tailby-Nason Company, Boston, Mass.
Todd, Paul H., A. M. Todd Company, Kalamazoo, Mich.

Ulen, H. C., Maltbie Chemical Company, Newark, N. J.

Walters, Dr. A. L., Eli Lilly & Co.
White, A. J., Allaire, Woodward & Co., Peoria, Ill.
Williams, S. W., Bauer & Black, Chicago, Ill.



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